

A THEORY OF PHILOSOPHICAL HUMOR:
THE EFFECTS OF HUMOR ON OPTIMISM AND EMOTIONAL INVOLVEMENT

by

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A Dissertation Presented to the Graduate Council of
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DEDICATION

To Jon, Linda, Bill, and Kim

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Philosophical humor was defined as a jest that encourages both an acceptance of inescapable vulnerabilities and a willingness to assert the self against tractable problems. Its major stimulus qualities were identified as follows: (a) *condensation*—the fusing of several latent meanings into a single manifest element; (b) *playfulness*—cues indicating that a message is harmless; (c) *make-believe*—extravagant and unusual images; (d) *discovery*—stimuli whose apparent incongruity provokes problem-solving; (e) *harm symbols*—references to the dangers and travail of life; (f) *reinterpretation*—a benign image of harming stimuli; and (g) *drive content*—images modeling drive expression. Only the last three were considered specific to philosophical humor.

A comprehensive theory of philosophical humor was developed from work by Freud, Kris, and Lazarus and from existing empirical research. It can be summarized in the following propositions:

- I. Condensation, playfulness, make-believe, and discovery enhance adaptive regression (in which direct use is made of

drive-dominated and nonlogical modes of thought).

- II. Harm symbols sensitize the audience to harming stimuli.
- III. Sensitization is sometimes accompanied by a mild threat reaction.
- IV. Drive content, in modeling self-assertion and dependency before a regressed audience, evokes an integration of drive impulses.
- V. Reinterpretation evokes cognitive reappraisal of harming stimuli.
- VI. The global effect is a form of insight containing intellectual understanding, emotional acceptance of vulnerability, and willingness to cope with tractable problems. The ensuing sense of mastery produces a positive attitude toward philosophical humor.
- VII. A person's response to philosophical humor will be inadequate if he fails to regress (producing indifference) or if he regresses without control (producing excessive threat and a negative attitude toward the humor).

A laboratory experiment was performed to test five hypotheses derived from the theory. The independent variables were exposure to philosophical humor and affective quality of projective stimuli; the moderator variables were humor appreciation, adaptive regression, and sex; and the dependent variables were optimism and emotional involvement as measured from fantasy.

Two of the hypotheses were at least partially confirmed: (a) humor appreciation was positively related to emotional involvement ($p < .05$), and (b) adaptive regression was positively related to the effect of

humor exposure on optimism ($p < .05$) but not on emotional involvement. The three unsupported hypotheses had predicted positive relationships between (c) humor appreciation and adaptive regression, (d) adaptive regression and emotional involvement, and (e) humor appreciation and the effects of humor exposure on optimism and emotional involvement. The lack of confirmation for (c) and (e) was attributed to the possible failure of self-report ratings to measure humor appreciation validly, while the lack of support for (d) indicated that the measure of adaptive regression used in the study primarily taps cognitive flexibility rather than ability to make contact with primary process material.

Two additional findings provided important support for the theory: Humor enhanced optimism among females ($p < .005$), and humor appreciation was positively related to the tendency to become more emotionally involved in happy than gloomy pictures ($p < .05$).

Finally, humor tended to lower emotional involvement among females ($p < .10$). This finding pointed to imprecisions in Propositions I and VI and to the advisability of re-evaluating the demands for emotional involvement posed by the experiment.

The theory has considerable heuristic value in guiding future research and in suggesting therapeutic applications.

CHAPTER I

INTRODUCTION

If any one quality captures the uniqueness of human experience it is the breadth and complexity of man's awareness. He knows something of his origins, his dependence on other organisms, and his ultimate destiny—enabling him at times to devise clever solutions to his problems or to forestall the inevitable. But the precious gift of awareness cuts both ways. While it enhances understanding and problem-solving, it also burdens man with an acute and distressing sensitivity to danger by engendering images of his vulnerability to illness, starvation, financial ruin, rejection, and other misfortunes.

What saves him, then? What additional mental qualities enable him to calm his fears, to accept his predicaments with some equanimity? Besides coping directly with the danger (which is occasionally a fruitless and exhausting endeavor), he can use various psychological defenses to reduce his nagging sense of threat. Philosophical humor is perhaps one of the most intriguing of these defenses. Through humor man can emotionally accept his jeopardy while in the same breath re-assert his readiness to continue the struggles of life. Coleridge has aptly sketched the most vital qualities of such a jest:

In humor the little is made great, and the great little, in order to destroy both, because all is equal in contrast with the infinite (cited by Coser, 1960, P. 81).

The present study will attempt to describe philosophical humor and to offer a theory of how it serves as a defense. The existing

psychological literature supporting the theory will then be reviewed. Finally, an experiment will be reported in which the theory's central hypotheses were tested.

THE NATURE OF PHILOSOPHICAL HUMOR

In standard usage the word "humor" refers to the ludicrous or absurdly incongruous qualities that things or events may possess. It is a general term for that which is funny or comical.

Several prominent literary critics and psychological theorists, however, have used it to refer only to a particular variety of humor, creating a thorny problem in terminology. In Fowler's (1926) influential analysis, "the ludicrous" was divided into eight types: the sardonic, cynicism, irony, the invective, sarcasm, satire, wit, and humor. Freud (1928, 1938), furthermore, developed a well-known psychological theory in which the distinction between wit, comedy, and humor was an essential element. The importance of Freud's distinction can be clearly seen in the following summary of his work by Berlyne (1960):

The pleasure of *wit*, which induces laughter through a play on words or ideas, is due to a "saving in inhibition." This may come from a temporary release of sexual or aggressive urges that are normally kept inhibited. Alternatively, in the case of "harmless wit," there may be a delight in illogicalities and absurdities simply because they represent a temporary respite from the burden of suppressing irrelevant, frivolous, or illogical associations that a lifelong training to be rational imposes on us.

The *comical* forms. . . all involve some kind of contrast between something to be taken seriously and something trivial, or between something befitting a rational adult and something worthy of a child. . .

Freud reserves the term *humor* for situations in which a person is able to see a funny side in his own misfortune. Both he and his audience then enjoy a "saving in affect," since a state of affairs that would otherwise evoke strong unpleasant emotions is taken lightly (P. 256).

The distinctions suggested by Fowler and Freud are clearly valuable, but so is effective communication. We propose that the resulting dilemma be resolved by retaining standard usage of "humor" as the general term for all forms of the ludicrous and by adopting a new term, "philosophical humor," to refer to that special variety described by Freud.

Definition of Philosophical Humor

Philosophical humor evokes mirth in the respondent, as does all humor. What distinguishes it is the rational, temperate, and dignified attitude it expresses. One is not taking pleasure at another's expense, but neither is one poking fun at oneself masochistically. It attempts to place the travail and threats that one faces into proper perspective so that the exaggerated significance often attributed to them can be reduced to appropriate and manageable proportions. As Fowler (1926) said, it is an observation whose purpose is to veridically portray human nature to a sympathetic audience.

The Major Stimulus Qualities in Philosophical Humor

The following analysis played a significant role in guiding construction of the theory of philosophical humor to be presented in Chapter II. The analysis will attempt to define and describe seven attributes which are thought to be the most critical stimulus qualities in philosophical humor. The first four are germane to all forms of humor, while the last three are more characteristic of philosophical humor in particular. Its persuasiveness will depend entirely on the plausibility of its examples and logic, as practically no research has been done to define the critical attributes of humor empirically. Thus,

at some points a more elaborate discussion will be undertaken than would be required if empirical work were available.

1. *Condensation.* Humor is able to convey a message of uncommon power because it condenses a complex or imaginary situation into a concise statement that can be readily understood and retained. As Shakespeare asserted in *Hamlet*, "Brevity is the soul of wit." Condensation may not be the soul of all forms of humor, but it is at least a crucial component.

Condensation serves several purposes. One is to permit the humorous message to be communicated in an atmosphere of ease and relaxation. Imagine how vexing most jokes would be if their telling required half an hour of detailed explanation. Sufficient material to introduce a joke can ordinarily be expressed in a few words carefully chosen for their allusions and connotations. Excessive detail is also anathema to that precious terminal moment when the person discovers the single cognitive orientation which alone successfully resolves the contradictions he had previously been struggling to interpret. Grasping the intended meaning of a joke is like insight—it is most pleasant when it comes suddenly and clearly, leaving no residual ambiguity to diminish the joy it brings. A concise punch-line is therefore of the utmost necessity.

Condensation also enables the humorous message to create original images simply through juxtaposing before the audience an array of willing symbols as opposed to a hodge-podge of clumsy and intractable objects. This function will be discussed in greater depth under *make-believe*.

Finally, the compressed ideation in humor provides a suitable medium through which weighty but illogical inferences can be suggested

to the audience in a manner well-suited to minimize the latter's resistance. Let us dwell on this point, as it is of considerable relevance to the theory.

Collier's (1960) study of popular cartoons is replete with examples of subtly expressed fallacious reasoning used as a technique of persuasion. Consider her analysis of Decker's cartoon, which is presented in Figure 1:

[This] cartoon shows what might be Roman soldiers with swords, shields, and helmets; they are manipulating a loaded catapult machine which is somewhat clumsy and obviously limited in its effectiveness though presumably ingenious and fearful in its day. This notion of awkward ineffectiveness and possibly exaggerated menace seems to be comfortingly transferred to modern scientific precision and destructive potential, by the "contemporary" caption: "X, IX, VIII, VII, VI, V, IV, III, . . ." (P. 258).

Presumably, the cartoon is meant to propose the following syllogism:

- A. History has shown that elaborate instruments of war prove themselves to be much less frightening than they at first appeared.
- B. Our new instruments of war are elaborate.
- C. Thus, in time we will find our instruments of war to be much less frightening than we now conceive them to be.

The argument as outlined is defective in at least five respects.

First, the major premise is supported by proof of only limited generality (e.g., the ineffectiveness of the catapult).

Second, facts supporting the major premise are misrepresented. The harmlessness of the catapult, for example, is exaggerated by means of pictorial caricature to such an extent that the audience can hardly refute the major premise on the basis of the facts at hand.



"*X, IX, VIII, VII, VI, V, IV, III ...*"

Fig. I. Decker's cartoon.

Third, concealment of the cartoon's persuasive intent is achieved through the partial exclusion of the minor premise and the conclusion. The minor premise is communicated only by subtle intimation: the martial and elaborate qualities of the catapult suggest our guided missiles, and the countdown suggests a guided missile launch. Likewise, the conclusion is communicated solely by the suggested similarity between ancient and modern warfare: both involve soldiers, launchings, and missiles.

Fourth, and perhaps most importantly, the conclusion is a *non sequitur* because it is based on argument by analogy. The cartoon makes no attempt to show that this particular lesson from the past is necessarily relevant to the situation faced by the audience. Old weapons have indeed tended to be replaced by objectively more effective ones during the course of history. But the ridicule which succeeding generations frequently express for the weapons of a former era unfortunately does not give every new generation a reason to underestimate its own weapons. The possibility that our present weapons shall someday appear harmless in contrast with those yet to be invented only implies an unimaginable terror for the future—not a basis for security in the present.

The purpose of the foregoing analysis was not to discredit humor but was simply to demonstrate that condensation permits humor to advance powerful nonverbal arguments which the audience is at pains to refute.

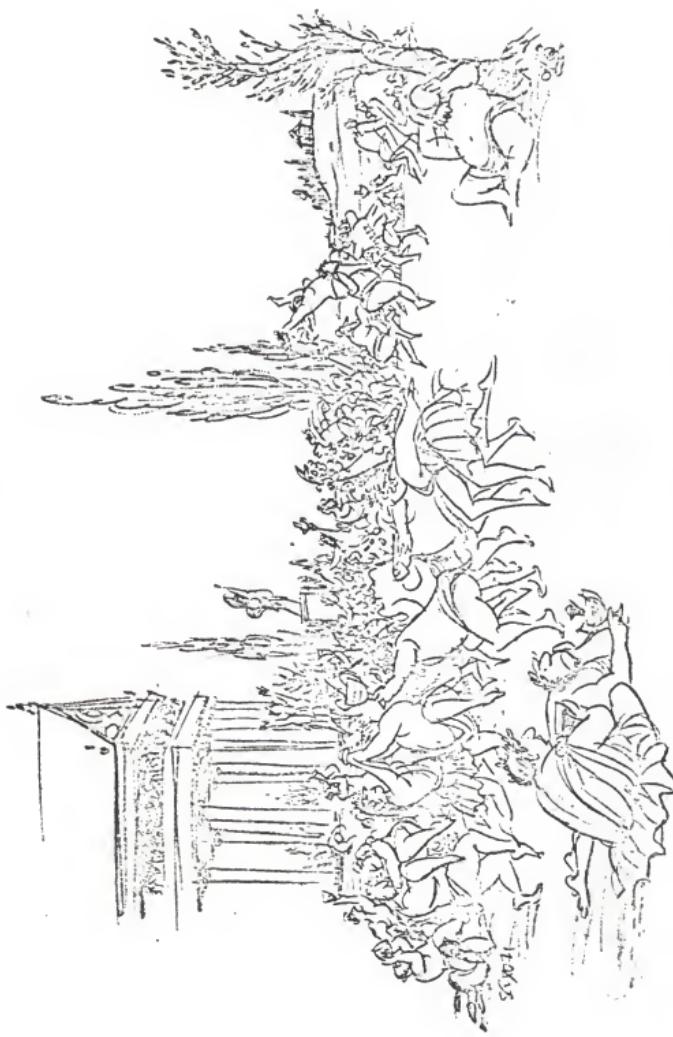
2. *Playfulness.* All forms of humor contain cues informing the audience that the message to follow is offered with a harmless intent. Levine (1968) has spoken of humor's metacommunication, "this is for fun."

The stimuli involved in conveying playfulness are frequently social. They may be such nonverbal cues as "a wink, a smile, a gurgle in the voice" (Fry, 1963, P. 141) or such verbal expressions as "Let me tell you a story I heard," and "Did you hear the story about. . .?" Cartoons express their playfulness through make-believe and drive content (see below) and through such distinctive cues as their appearance in magazines and newspapers, their separation from the written material, and their typical format of captions and pictorial representation.

3. *Make-believe.* As Maier (1932, P. 74) has pointed out, humor has "characteristics of the ridiculous in that its harmony and logic apply only to its own elements." Whereas playfulness is simply a jovial absence of seriousness, make-believe embodies an extravagant and unusual image conveyed through the humorist's use of distortion and allusion.

Saxon's cartoon (see Figure 2) is an excellent example of distortion and allusion in humor. He did not simply sketch a few drunken, licentious partygoers. Several of the revelers are flinging their arms into the air with wild libidinous abandon, many others are dancing with extravagant vitality, and the drinkers are not imbibing casually but guzzling. Taken together, such elements create a preposterous figural exaggeration. The make-believe quality was further enhanced by the use of allusion. The cartoon's setting amongst the temples and statues of Ancient Rome, for instance, serves to evoke images of power and eternity which further arouse the audience's imagination.

Humor items differ markedly in the amount of make-believe they possess, but it nearly always contributes to a fluidity of thought similar to that induced by condensation.



"The Rites of Spring probably aren't getting any duller. Maybe we're just getting older."

Fig. 2. Saxon's cartoon.

4. *Discovery.* According to Berlyne (1969), many theorists have seen the sudden discovery of a principle unifying two or more contradictory cognitions as an essential, though not necessarily sufficient, cause of humor (e.g., Beattie, 1776; Kant, 1790; Koestler, 1964; Maier, 1932; Schopenhauer, 1819; and Willman, 1940). Getting the point in humor is like the pleasurable moment in insightful problem-solving when the solution is suddenly grasped and an inner cry of "Aha" or "Eureka" fills the person with joy (Bateson, 1969; Maier, 1932).

Perhaps the moment of insight in both humor and productive thinking is pleasing because it creates a refreshing cognitive simplicity and consistency that the previous state of unresolved incongruities had prohibited. Or, as Levine (1968) has suggested, perhaps it derives from a sense of competence at having mastered a difficult problem:

Appreciating a joke means that we are able to master the symbolic properties with their multiple figurative and allegorical referents; it is not unlike solving a complex problem. It is the sudden discovery achieved by the reshuffling of these symbols into a surprisingly new relationship which contributes to the pleasure in the joke. . .(P. 2).

Both possibilities could be subsumed under Festinger's theory of cognitive dissonance; the first would be most consistent with his early formulation (Festinger, 1957), whereas the second would fit better with the revised formulations (Aronson, 1968; Festinger, 1964). In any event, the element of discovery in humor is assumed to be rewarding for the audience.

That all humor contains discovery was persuasively demonstrated by Willman's (1940) content analysis of various types of humor. He

concluded that "humor always results from the union of two ideas which involve some sort of contradiction or incongruity" (P. 72). Three means were cited by which humorous material can accomplish this union:

- (a) the two ideas may be united by possessing important common elements,
- (b) the one may simply be an inference drawn from the other, or
- (c) they may be seen actually to occur together in objective reality.

Willman's analysis, though only rudimentary, will be summarized as an instructive illustration of the discovery process in humor.

The first form of union, attainment of consistency through the possession of an important common element, was illustrated by the following joke (P. 72):

Friend: "Isn't there anything you would like to say, Sam, before they pull the rope?"

Sam (with head in noose): "Jes' tell the judge maybe he done a good thing after all. This is gonna be a mighty good lesson to me."

As Willman (P. 72) says, "If the man is about to die how can he mend his ways in the future?" The two incongruous elements are "being hanged," which implies a cessation of life, and "being reformed," which implies a continuation of life. The element unifying the two is "punishment."

The second means of uniting common elements is through logical inference, which Willman illustrated with the following pun:

Q: "What made the Tower of Pisa lean?"

A: "It was built during a famine" (P. 73).

The word "lean" in the context of the above question is most readily

interpreted in the sense of "slant," but the meaning of the respondent's reply contradicts this interpretation. The incongruity is resolved only when the person hearing the joke discovers lean's alternate meaning, "thin," and infers an appropriate reinterpretation of the question.

The third means of uniting incongruous elements is to perceive them together in objective reality. When looking at oneself in a comic mirror, for example, one sees an image that is at once both distorted and familiar. The resulting discovery is immediate and compelling.

Only scanty work has been done to test empirically the role of discovery in humor. One study, interpreting discovery as "cognitive challenge" (Zigler, Levine and Gould, 1967), found that pupils in the third, fifth, and seventh grades of primary school preferred cartoons that taxed but did not exceed the upper limits of their intellectual ability as opposed to those that were either too easy or too difficult.

Two early Gestalt studies supplement each other and together provide an interesting description of the discovery process in humor. The first of these was Maier's (1932) analysis of incongruity. He concluded that three cognitive factors determine the humorous quality of a joke:

- (a) the magnitude of the cognitive reorganization required to achieve resolution of the incongruity,
- (b) the swiftness with which contradiction is resolved once it is perceived, and
- (c) the adequacy with which the final interpretation resolves the incongruities that had initially been perceived.

The other study was Sears' (1934) dissertation. He proposed that the *mirth-response* given to a joke varies as a function of the following schematic elements, which he believed were common to all forms of humor:

- (a) the *original closure tendency* (o.c.t.) establishes an initial set of expectancies in the audience,
- (b) the *dislocation* of the o.c.t. is the point when incongruity is first introduced into the joke, and
- (c) the *secondary closure tendency* (s.c.t.) resolves the incongruity between the o.c.t. and the dislocation.

In terms of Willman's pun, the o.c.t. would correspond to the expectation that "lean" is being used to mean "slant," the dislocation would correspond to the respondent's incongruous response "It was built during a famine," and the s.c.t. would correspond to "thin," which is the alternate meaning for "lean" and is consistent with the context introduced by the dislocation.

In the empirical research accompanying his theory, Sears found clear evidence for the importance of factors (a) and (b) in Maier's scheme. He examined the hypothesis that a weakening of an o.c.t. [thereby reducing factor (a)] and a lack of suddenness in introducing the s.c.t. [reducing factor (b)] would both impair the mirth-response elicited by a joke. He weakened the o.c.t. either by introducing a temporal interval of approximately 50 to 70 seconds between the end of the o.c.t. and introduction of the remaining elements or by deleting all but the minimal details which had originally been used to arouse the o.c.t. As predicted, both procedures decreased appreciation of the humor. He reduced the suddenness with which the s.c.t. was introduced by disclosing it prematurely (i.e., while the o.c.t. was being developed). Again as predicted, subjects liked the altered jokes less than the originals. Evidence in support of factor (c) in Maier's theory remains to be reported.

5. *Harm symbols.* Philosophical humor contains reference to the dangers and uncertainties of life, a fact that Freud emphasized in his

famous work on humor (Freud, 1928, 1938). Freud saw the protagonist in humor as someone in a distressing situation who would normally be expected to "get angry, complain, manifest pain, fear, horror, possibly even despair" (Freud, 1928, P. 2).

Collier (1960) documented the presence of harm symbols in philosophical humor by analyzing cartoons from three popular magazines to determine the extent to which they dealt with foreign relations, Sputnik, and economic recession—three topics considered to be anxiety-arousing to Americans at the time the cartoons were published. She was able to locate numerous examples after sampling only a few issues. Hes and Levine (1962) undertook a similar analysis, finding that the themes in popular cartoons published by kibbutz artists express a preoccupation with various sources of frustration and conflict peculiar to kibbutz life. For instance, the cartoons dealt with the attitude of extreme disrespect which kibbutz youngsters show toward their elders, the general unwillingness of kibbutz members to take on managerial responsibilities, the derisive attitude toward those who accept such responsibilities, and the anti-intellectual attitude which permeates the kibbutzim.

Four field studies also document the presence of harm symbols in humor. Coser (1960) found that much of the humor expressed during staff meetings at a psychiatric hospital related to role conflict, feelings of professional inadequacy, and threats to group norms. Goodrich, Henry, and Goodrich (1954) confirmed these results in a similar setting and, in addition, found a "remarkable incidence of hearty and prolonged laughter in reaction to the mention of death" and the use of humor to release tension during "spirited" arguments.

Coser (1959) found that the humor of patients in the ward of a general hospital dealt primarily with anxiety about self, submission to a rigid authority structure, and adjustment to rigid routine. Finally, Emerson (1963) concluded in a similar study that patient humor was a protest against the indignities imposed by hospital life.

An experiment by Shurcliff (1968) offers still further evidence. He contrived three comic situations designed to evoke varying degrees of threat in subjects. The humor ratings of these practical jokes were positively and monotonically related to both the experimenter's *a priori* estimate of their threatening qualities and to the subjects' own ratings of anxiety under each condition.

An early case study of two college students (Barry, 1928) gives a highly suggestive illustration of the correspondence between personality dynamics and the specific harm symbols appreciated in humor.

One of Barry's subjects, let us call him Alan, was emotionally disturbed by stimuli associated with violence; he gave indications of affective tone when free associating to violence-related words and reported emotionally charged childhood experiences dealing with violence, as in the following incident:

"When I was a small boy, an old horse got sick in the barn nearby. They had to shoot him. Of course I was on hand. Seeing a great spurt and spatter of blood, I got quite violently sick. I was quite interested in the details afterward and very disgusted with myself for getting sick again. I imagined it was something I had eaten which was responsible. Mother asked me what the shooting was and I wouldn't tell her anything about it. Dad came in later and said they had shot a horse and I felt myself getting sick again!" (P. 127).

What is interesting about Alan is his "especial enjoyment" of mirth themes relating to violence. Consider the joke given below, which

Alan liked but which his counterpart, Bob, did not.

Judge: "Why did you throw your roommate from the building?"

Sophomore: "We quarrelled. I held him over the edge of the sill, and he shouted, 'Let me go or I'll call the police.' So I let him go."

Alan also had an intense aversion to cold weather, which in like manner led him to appreciate with unusual mirth jokes related to snow and ice.

The second subject, Bob, manifested an analogous pattern in areas of particular disturbance to him. He was very sensitive to ridicule, as is clear in the following quotation:

"Above all things, I am afraid of making a fool of myself. . . I find it quite painful to listen to a musician perform in front of an audience, when he can't quite do it. Being very self-conscious, I would suffer horribly if it were me" (P. 128).

Appropriately, Bob liked the following joke concerning humiliation more than Alan did:

Professor: "What did you say?"

Student: "Nothing."

Professor: "I know, but how did you express it this time?" (P. 125).

These studies in general indicate that the content in adult humor is related to the underlying threats faced by those who produce and enjoy it. A study by Wolfenstein (1954) extends this conclusion to children's humor. She found that children express in their humor dismay over being so small and inadequate in comparison to the adult world with which they must cope and apprehension over the acceptability of the sexual and aggressive impulses they are learning to control.

The above literature was reviewed in detail because the relationship between humor and threat occupies a prominent position in the theory to be presented. The research suggests two conclusions. First,

philosophical humor often contains harm symbols. Second, an intimate correspondence appears to exist between the particular type of harm symbols a person appreciates in philosophical humor and the nature of the threats he faces.

6. *Reinterpretation.* One of the most important qualities in philosophical humor is the benign image of harming stimuli it conveys. It omits the menacing features of a stimulus to produce denial, exaggerates a danger to generate ridicule, portrays the feelings of others to engender positive social comparison, and so forth. In one way or another it reduces the perceived capacity of a stimulus to inflict harm.

Reinterpretation is similar to make-believe in that it contains a distortion of reality, but it does not necessarily convey improbable or fanciful images. It is distinguished from drive content (see below) in producing its distinctive effects through suggestion and inference rather than through direct modeling of drive expression.

Handelsmon's cartoon in Figure 3 provides an excellent example of reinterpretation. Two snobbish and handsomely dressed men are walking in what appears from the skyscrapers in the background to be a large American city; they are casually observing a scuffle between three men on the opposite side of the street. Being typical Americans, their consciences are at least partly imbued with the Biblical injunction, "Do unto others as you would have them do unto you." One is not just to restrain himself from hurting others; he is also to perform the positive acts towards others that are expected of him. The self-respect of these men is thus clearly engaged by the situation they confront. They would appreciate intervention by a neutral party if



Fig. 3. Handelsmon's cartoon.

it were they who were fighting, especially if they were outnumbered two-to-one (as is the case for one of the brawlers). Yet their experience as inhabitants of a large city has taught them to avoid involving themselves in other people's problems. They know that they only stand to suffer injury or abuse and that their sacrifices alone would contribute almost nothing to the welfare of their city. In short, they feel guilty but helpless.

The caption to Handelsmon's cartoon offers the audience a series of comforting reinterpretations. First, the phrase "My personal Golden Rule. . ." implies that each person has the right to interpret moral injunctions for himself. Second, the mock Biblical phraseology subtly implies a religious sanction for this revision. Third, the words "never to interfere with what others do unto others" attempts to deny the positive half of the Golden Rule. Fourth, and most importantly, the cartoon communicates reassuring social comparison by informing the audience that other people share their feelings of guilt. The cartoon in effect is saying to the audience, "You are exempted from certain of your duties toward others if you inhabit a large city in which the resources of any one individual are hopelessly inadequate to the enormous duties for which you could theoretically be held responsible. Furthermore, you are not alone in feeling guilty so don't torment yourself."

The persuasiveness of a reinterpretation is sometimes enhanced by the extensive use of make-believe, as in Saxon's cartoon (Figure 2 above). Beier, Rossi, and Garfield (1961) reported that most people see their friends as "more social, less depressed, less susceptible to moods, less concerned with bodily functions. . ." than their friends

in fact are, and probably nowhere is there a better example of such distressing social comparison than in the fatigued men pictured in Saxon's cartoon. These men appear dejected and forlorn as they observe the surrounding carefree gaiety of a younger generation.

The scene poses a threat to the members of the audience, who will experience the men's plight vicariously through positive identification. Saxon's cartoon counteracts this threat by offering in the background a fantasied scene of improbable libidinous abandon against a setting of "eternal glory." The exaggerated gaiety of the revelers implies that no one is really as carefree as he might try to appear and provides a mild relief from the burden of enduring unpleasant social comparison. The exaggerated pathos of the principal characters, on the other hand, suggests that a touch of good-natured resignation might be an appropriate remedy for the anxiety which accompanies aging. The cartoon enables the audience to experience a sense of superiority toward the problem of being a little bit left behind by exaggerating it to the point where its real menace appears just too trivial and inevitable to get upset about.

Decker's cartoon (Figure 1) makes similar use of make-believe. It conveys a broad historical perspective in which old dangers appear to lose their threatening qualities over time. "How exaggerated present problems seem in comparison to the rest of human history!" is the fantasy it provokes. The mere recognition that grave dangers threaten our society communicates partially comforting social comparison by letting the audience at least know it is not alone in feeling threatened, which arouses a sense of affiliation.

The above discussion attempts simply to illustrate the importance of reinterpretation and to suggest some of the subtle methods by which it is communicated. Considerably more extensive analysis, which is beyond the scope of the present study, would be necessary to describe this quality with any precision.

7. *Drive content.* Several of the stimulus qualities already discussed affect motivational processes. Reinterpretation, for instance, may encourage self-assertion by portraying an emasculated image of harming stimuli. But drive content is distinguished from these other qualities by the explicit acts of drive expression that it depicts. The modeled acts are assumed to induce drive through vicarious conditioning processes (see Bandura, 1969).

One of the most serious motivational problems that a person faces is coming to terms with certain unpalatable features of the fate forced upon him by life. Fromm (1956) has described this fate in the following terms. Each person experiences a need to preserve himself physically and to relate meaningfully to the world around him. He cannot escape these needs since they are a part of his inherent nature, yet their full gratification is blocked by his individuality and by the inevitable separation that death will bring. Finally, his innate ability to imagine the future and to realize the ultimate futility of his struggle prevents him from escaping totally into the perhaps blissful ignorance known to other forms of life.

Although Fromm cited several ways of coping with this predicament (including love, work, orgiastic states, and so on), the coping mechanism of particular interest here is that jocular, ironic assertion of the self which is a distinctive feature of philosophical humor. One gently pokes fun at a generalized conception of Fate.

Examples of such self-assertion can be found in the cartoons previously discussed. Mrs. Glenhorn, for instance, has defied customary hospital regulations in Price's cartoon (Figure 4) by lying in bed with a patient. Moreover, Mr. and Mrs. Glenhorn are expressing a hostile, recalcitrant grimace as the nurse informs them that Mrs. Glenhorn must leave. One suspects that the nurse will not readily obtain the Glenhorns' compliance. The cartoon elicits self-assertion by modeling acts of resistance to external regulation, which is one element of Fate. Handelsmon's cartoon (Figure 3 above) portrays two men who are defying their consciences by reformulating moral injunctions and maintaining an indifference toward overwhelming problems.

Dependency is the second drive modeled in philosophical humor. The revelers in Saxon's cartoon are expressing joy unabashedly, and one of the protagonists is revealing wistful reminiscences and frankly admitting his approaching debility. In Decker's cartoon (Figure 1) the foolish grin worn by the soldier on the right elicits a sense of simplicity. Price's cartoon provides an excellent additional illustration. The two elderly people, by finding comfort in the physical expression of affection, are modeling the enduring simplicity and invincibility of basic human needs.

The expression of other drives may be modeled in philosophical humor, but self-assertion and dependency are the acts most characteristically portrayed. The balance between these two drives plays a crucial role in the drive integration to be described below.

Summary.—All humor contains condensation, playfulness, make-believe, and discovery. Philosophical humor is characterized by three additional qualities—harm symbols, reinterpretation, and drive content.



"Visiting hours are over, Mrs. Glenhorn."

Fig. 4. Price's cartoon.

CHAPTER II

THEORY

A basic postulate in contemporary theories of motivation is that organisms approach stimuli that reward and avoid those that punish. It is easy to conjecture why some individuals approach humor containing large amounts of sexual and aggressive drive content. The disguise produced by condensation and make-believe permits such potentially guilt-evoking content to slip past a censor lulled by playful cues and diverted by the problem-solving required in discovery. Moreover, its power to gratify sexual and aggressive drive is undisturbed by virtue of the richness and flexibility of the cognitive medium through which it is communicated.

It is more difficult, however, to see immediately why humor incorporating harm symbols is approached by an audience. What satisfactions can such humor afford the audience? A major purpose of the present study is to provide a theory that attempts to answer this question. The psychoanalytic theory of humor and art and a cognitive theory of coping processes will be discussed to provide a background for the theory.

BACKGROUND

Psychoanalytic Theory

According to Freud's general psychoanalytic theory (see Hall & Lindzey, 1957), life poses a constant threat to the integrity of

a person's adaptive, reality-oriented functions. These processes, collectively called the ego, must forever remain vigilant in their bid to protect the organism from environmental dangers. As a means of acquiring energy to fulfill its role, the ego expropriates instinctual energy by attaching (i.e., cathecting) the latter to its own mental representations of the external world. By involving the organism emotionally in a wide range of objects, the ego is able to provide the instinctual processes (the id) with diverse sources of gratification. Yet these investments, successful as they are in strengthening the ego's position *vis à vis* the id, only serve to extend the range of external dangers against which the ego must remain incessantly on guard. If the ego has established a cathexis between the id and an image of a large, spacious, and comfortable house, for example, then whatever endangers the existence or availability of this house simultaneously endangers the ego's ability to channel and control the id. A special subdivision of the ego ultimately develops as a result of the peculiar dangers and opportunities posed by societal sanctioning of certain social behavior. This subdivision, the superego, contains the images of punished behavior (the conscience) and of rewarded behavior (the ego ideal).

Freud's theory of philosophical humor is a special case of this general theory. Thusly faced with a multitude of threats, the ego is in need of a brief respite from its never-ending duties. Freud thought philosophical humor provided relief by inducing a shift in energy from the ego to the superego. Rather than continuing to hold the ego strictly accountable for its transactions with reality, the superego relieves

the ego of its responsibilities and permits the person to take a condescending, parental attitude toward the former's preoccupations. Like an adult toward a child, the person recognizes and smiles at the "triviality" of the ego's concerns and says, in effect, "'Look here! This is all that this seemingly dangerous world amounts to. Child's play—the very thing to jest about'" (Freud, 1928, P. 2).

Occasionally Freud's theory is summarized by reference solely to his analysis of the economic function of philosophical humor (e.g., Berlyne, 1969). This analysis can be summarized as follows: The audience is watching someone grapple with a dangerous situation and is preparing to suffer vicariously; suddenly the protagonist dismisses the seriousness of his situation by jesting about it, and the audience is able to experience a "savings in expenditure of feeling."

Although Freud at one point clearly intended to explain philosophical humor partly in economic terms, it is equally clear from Freud's foregoing statement that he intended to emphasize the more enduring and positive role of philosophical humor. He saw philosophical humor as helping the audience adapt to the universal problems of life. Hence, it is not that philosophical humor produces a savings in the expenditure of psychic energy which counts; it is rather that the interpretation responsible for this savings produces an enhanced sense of mastery for the audience. The savings is somewhat irrelevant, as humor may produce no savings or an actual increase in expenditure and still retain its therapeutic effects on the ego.

Regression is a crucial concept in Freud's scheme. The concept originated from his separation of primary and secondary processes. Secondary process contains the adaptive, reality-oriented functions of

the ego, whereas primary process encompasses the id-oriented unconscious functions. According to Freud, the id possesses two channels through which to discharge its energy—reflex and primary process. When reflex action is inhibited, primary process is able to discharge tension "by forming an image of the object," thereby providing "wish-fulfillment" for the impulse (Hall & Lindzey, 1957, P. 33).

Kris has suggested that the power of primary process lies in the richness of its symbols:

The primary process exhibits to a striking degree the tendency to focus in a single symbol a multiplicity of references and thereby fulfill at once a number of emotional needs (Kris, 1952, P. 254).

In terms of neobehavior theory, primary process material can be seen as a reservoir of unconscious stimulus traces to which sexual or aggressive conditioned responses have been associated through the former's contiguous pairing with the discharge of unconditioned drive responses. In regressing to this material, the person's attention shifts from external stimuli to the ongoing discharge of these latent symbolic responses. Regression is not easy to attain, however, as the person has learned through operant conditioning that permitting these emotionally charged implicit stimuli to intrude into his consciousness frequently accompanies punishment in the form of negative affect. Such affect is evoked as an unconditioned response or as a consequence of acts performed by personal or impersonal agents in the person's environment. A set of competing habits is generated which Freud called countercathexes; these decrease the frequency of regression by inhibiting discharge of the punished implicit responses.

Adults can be thought to differ in the range of discriminative stimuli that was used during their childhood to train their control

over cathected symbolic responses. Some individuals were punished only when a limited set of internal or external cues was present, and even then only rarely, leaving them free to regress under a variety of circumstances. Others received punishment to such a wide variety of cues and at such an excessive intensity that an inordinate portion of their egos' resources has been allocated to countercathexis.

Our appreciation of the importance of regression comes largely from Kris' (1952) well-known psychoanalytic study in which "regression in the service of the ego" on the part of both the artist and his audience was depicted as the major source of vitality in art. A sketch of his ideas will be helpful before proceeding, as the theory to be presented incorporated much of his analysis.

Kris contends that overcontrol, or fear of regression, is a sign of a weak ego; "it is only after the dominating power of the ego has been restored" that patients with weak egos "reacquire the faculty of humor" (Kris, 1952, P. 203). Associating overcontrol with a weak ego may seem to be a contradiction in terms, but it should be recalled that the ego has other functions to perform besides inhibiting the id. In fact, the ego must be able to arrange for some form of direct gratification of drive if it is not to be overwhelmed by the energy whose release it has blocked. Thus, an ego that has devoted a disproportionate share of its resources to countercathexis finds itself weakened in its *overall* position *vis à vis* the id. As in economics the control of inflation must not be purchased at the expense of all initiative, likewise in psychic functioning the regulation of the id cannot viably be maintained through the suppression of all drive.

Neither undercontrol nor overcontrol represents a fully adaptive mode of functioning. Their respective deficiencies are manifested clearly in the quality of the artistic production with which they are associated:

When regression goes too far, the symbols become private, perhaps unintelligible even to the reflective self; when, at the other extreme, control is preponderant, the result is described as cold, mechanical, and uninspired (Kris, 1952, P. 254).

Moreover, since the audience's task is to re-create the artist's original experience, the response given by the audience can likewise be evaluated in terms of the level of regression it exhibits:

Where ego control in the audience is high, the result is not re-creation but reconstruction. The experience is, in the common locution, "intellectualized". . . On the other hand, when the psychic level of interpretation involves too little ego control, the meanings responded to are projective and lacking in integration. The aesthetic response is overwhelmed in blind raptures, the ecstasies of the "art lover" (Kris, 1952, P. 256).

Since the present analysis is most concerned with the audience's response, the latter point is of utmost importance. The path to an enriching aesthetic experience lies in a compromise between under-control and overcontrol of the primary process.

Regression, as Kris has indicated, is most critical during the initial stage of appreciation:

In a first phase the ego relaxes control: i.e., it opens the way to an interplay with the id. This phase is predominantly passive: The art work dominates the public. In a later phase, the ego asserts its position in re-creation. In doing so, it not only wards off fear of the demands of the id and of the pressures of the superego, but it controls the flow of mental energy (P. 62).

In other words, the audience must regress in order to feel the artist's

emotion, but the regression should remain at least partially regulated by the ego if the total experience is to be meaningful and therapeutic. Kris has defined such adaptive regression as

the capacity of gaining easy access to id material without being overwhelmed by it, of retaining control over the primary process, and perhaps specifically, the capacity of making rapid shifts in levels of psychic function (P. 25).

Kris explicitly intended his analysis to encompass all forms of aesthetic and symbolic experience (e.g., P. 177), and humor is clearly well within its bounds. But the application of his ideas is difficult. His specific treatment of humor is scanty, and the general theory is never expressed in a comprehensive or unified manner. Therefore, one of the purposes of our theory will be to draw his ideas together.

In summary, Freud maintained that people enjoy philosophical humor because it reduces threat. This kernel of truth has been used to advantage by many subsequent writers (e.g., Barry, 1928; Collier, 1960; Coser, 1959 & 1960; Goodrich *et al.*, 1954; Kris, 1952; Levine, 1968), but Freud's explanation of how philosophical humor reduces threat has been far less influential. Philosophical humor was thought to relieve the ego of responsibility for protecting the organism and to transfer it to the superego. This shift was supposed to give the ego a therapeutic respite and to provide savings in affect for the psychic system as a whole. These latter hypotheses have failed to stimulate research partly because of the general difficulty in operationally defining Freudian constructs and partly because they appear implausible in certain respects (e.g., the economic formulation). Kris (1952) enriched the psychoanalytic theory of humor by pointing to the role played by regression in all forms of creativity and art

appreciation. But a coherent, testable theory of philosophical humor still remains to be formulated.

An analysis of coping processes.—Lazarus' (1966) treatment of the coping process is a useful frame of reference through which to reconceptualize psychoanalytic theory within the confines of contemporary learning and cognitive theory. Lazarus defines primary appraisal as the process in which a person decides to what extent he or his values are in danger. This appraisal may be based on either harm symbols (cues signaling the future presence of harm) or on the presence of a harming stimulus (the agent actually capable of producing harm). Threat results when either type of stimulus is seen to imply a high probability of danger. In secondary appraisal the person decides whether and how he can effectively cope with the harm without creating new dangers. Coping refers to the strategies adopted to neutralize the harming stimulus. Both primary and secondary appraisal are thought of as highly cognitive in nature:

The appraisal of threat is not a simple perception of the elements of the situation, but a judgment, an inference in which the data are assimilated to a constellation of ideas and expectations (P. 44).

The two forms of appraisal are difficult to distinguish in any analysis of ongoing behavior because they utilize overlapping information and do not necessarily follow the temporal order implied by their names. "Primary" refers only to the fact that a threat must be perceived in order for an evaluation of coping effectiveness to have any importance to the individual. The two processes can conceivably occur simultaneously, as when "the stimulus configuration contains information relevant to both threat and coping" (P. 159).

A THEORY OF PHILOSOPHICAL HUMOR

The most important responses produced by philosophical humor can be postulated from the nature of its stimulus qualities. The joint presence of condensation, playfulness, make-believe, and discovery is believed to induce adaptive regression. This state then enhances the audience's readiness to be sensitized to the harm symbols, to adopt the threat-reducing reinterpretation, and to mobilize the integrated set of drives necessary to sustain threat-reduction. The ultimate effect for those who respond positively is a form of therapeutic insight. The sense of mastery gained by perceiving the ironies of life enables one to accept his vulnerability to misfortune with neither anger nor apathy.

These processes are described in greater detail in the following propositions.

Proposition I. *The qualities of condensation, playfulness, make-believe, and discovery in humor produce a regressive shift in the audience's level of psychic functioning.*

The plausibility of Proposition I will be established through an analysis of how condensation, playfulness, make-believe, and discovery each contribute separately to regression.

The condensed quality of humor facilitates regression in four ways. First, as in dreams, the manifest content in humor is but the outermost surface of an elaborate and extensive substructure of meanings. The compression of thought prepares the way for a fusion of images that can result in unique, original cognitive experiences. Second, the deceptive surface simplicity inhering in humor and dreams provides a device through which threatening drive content can gain access to the primary process. Forbidden images are able to establish

themselves surreptitiously in the busy ego where they can then reach down into the id and furnish the additional bit of energy needed to evoke a mild but soothing discharge. [The notion that the ego is capable of supplying the id with energy is, of course, contrary to one of Freud's most fundamental assumptions (Hall & Lindzey, 1957), but it would appear to be a highly plausible revision in light of the current thinking on general arousal and the role of cognitive readiness in facilitating drive discharge (see Berkowitz, 1969, for example).]

Third, because of the richness and complexity of the cognitive responses it is capable of eliciting, humorous material is able to implant fallacious inferences of great appeal to the nonlogical stream of primary process. Fourth, the surface simplicity of humor permits its underlying meaning to generalize to a wider variety of persons and situations than are actually depicted in its manifest content, hence giving it the power of metaphor. All of the above responses to humor can be considered regressive because all show an unusual dependence on primary process modes of thought.

Playfulness facilitates regression by communicating a sense of relaxation and non-urgency to the audience. The ego is assured that it will not be called upon in the immediate future to cope with a serious danger, which permits its attention to be shifted toward the inner world of primary process material.

Make-believe enhances regression by presenting unusual and vivid scenes that elicit imagination and emotional involvement from the audience. Members of an audience have to open their deepest psychic levels to a humorous fantasy in order to experience its full richness.

Make-believe also contributes to the adaptive quality of regression by helping foster what Kris (1952) has termed the "aesthetic illusion." This illusion is exemplified in the attitude of a theatrical audience. An actor's true source of motivation lies in his intentions to create a certain impression for the audience, not in his seeming desire to harm, embrace, or escape the other actors. The audience must partly accept at face value the motives portrayed in order to attain sufficient emotional involvement, but it must also keep the contrived nature of the performance in mind in order not to be unduly swept away. In other words, the highly charged stimuli typical of artistic productions cannot be allowed completely free access to the primary process level; the ego must retain part of its inhibitory function if it is to restrain the primary process from over-reacting. "A firm belief in the 'reality of play' can coexist with a certainty that it is play only" (Kris, 1952, P. 42). This balance is exemplified in the test which Wild (1965) developed to measure adaptive regression. A subject had to be able to function at both the regulated and unregulated levels in order to be high on adaptive regression.

Discovery plays a particularly important role in bringing about regression, as the very heart of the discovery process in problem-solving, insight, and creativity is thought to involve regression (see Barron, 1969; Getzels & Jackson, 1962; Hutchinson, 1939; and Kris, 1952, for example). Hutchinson's (1939, 1940, 1941) analysis of creativity provides a helpful context in which to consider the relationship between discovery and regression.

Hutchinson proposed that creative endeavor passes through four stages (Hutchinson, 1939). A person acquires the knowledge and

technical skills required for effective problem-solving in his specialty during a *period of preparation*. Eventually, the person defines a problem and sets to work on it. Meeting repeated frustration, he then enters a *period of renunciation* in which he shifts his attention toward other concerns and gains some degree of relaxation. But his primary process continues to ruminate on the problem. As a consequence, he may suddenly experience "a tenuous and fleeting *intimation* that insight is about to appear" (1941, P. 36), which propels him into the *period of insight*. This period relies heavily on regression. "The thinker removes himself farther from reality, enters more fully a world of relations as they exist in *unconscious thought*, a world of *emotional* rather than *logical significances*" (1941, P. 42, italics added). But precious insights are not enough. They can be "lost forever" if not "recorded at the moment of their appearance," so the person must sooner or later enter into the *period of verification, elaboration, or evaluation* if his insight is to be of any value to him. Clearly, the periods of renunciation and insight involve regressive modes of thought.

Hutchinson's analysis portrays a pattern that is quite similar to the more compressed stages of artistic appreciation as Kris described them: first an effort to absorb emotional and logically complex material and then a conscious, ego-directed effort to understand and retain the fleeting significance that one has experienced intuitively.

More importantly, the stages in humor appreciation adhere to the general creative process remarkably well. There is a long period of psychological development during which the person acquires a highly interrelated structure of cognitive and emotional responses, then confrontation with the humor and an unconscious struggle with its

incongruous ideas, followed by a moment when the point of the joke is suddenly grasped, which leads to a period of laughter or quiet pleasure during which the various meanings implicit in the humor are savored. It is particularly during the unconscious struggle with incongruity and the moment of insight that the discovery qualities in humor contribute most conspicuously to regression.

Condensation, playfulness, make-believe, and discovery are thus thought to enhance regression in distinct and specifiable ways. Because of a person's responses to these stimuli, he will relax certain gating mechanisms and begin processing information at a deeper level of functioning than he would normally.

Proposition II. *Harm symbols sensitize the audience to harming stimuli.*

It was shown in the Introduction that philosophical humor contains harm symbols. Since these symbols are processed at the same time as condensation, playfulness, make-believe, and discovery, and therefore strike a partially disarmed psychic structure, they are able to exert an unusually powerful impact on the person's primary process. The resulting sensitization is somewhat restricted to the specific dangers and agents symbolized in the humor, but presumably the audience is at least partially sensitized through stimulus generalization to various similar harming stimuli.

Proposition III. *Sensitization is sometimes accompanied by a mild threat reaction.*

According to Lazarus (1966), exposing a person to the symbolic representation of harm will produce a threat reaction to the extent that the person appraises himself as vulnerable to the harm. Thus, those individuals who cannot fully accept the reinterpretation and playfulness

cues which accompany the harm symbols may appraise the harm symbols in humor as a serious danger and experience a mild threat reaction as a consequence.

Propositions IV, V, and VI consider the instance in which a person responds adequately to philosophical humor—when he is able to make the adaptive regression required for emotional involvement and discovery and is able to utilize the reassuring interpretation and playful cues to minimize threat. Proposition VII then considers the instance in which a person fails in one or both of the above responses.

Proposition IV. *Philosophical humor simultaneously evokes self-assertion and dependency. By doing so at a time when the audience is especially receptive to primary process stimulation, philosophical humor is able to create a new response aggregate that unifies these two opposed tendencies into one integrated drive.*

The following analysis of drive will be based on an assumption suggested by Berger and Lambert (1968):

Cues may have two properties; they may *instigate* behavior and they may *guide* behavior. When cues function as instigators, they arouse the organism to action; when they function as guides, they select the responses to be activated and impart a directionality to the behavior sequence. A single cue may have either or both properties (Berger & Lambert, 1968, P. 140).

Their assumption is critical in the present theory, as several of the stimulus qualities in humor act both as conditioned stimuli (CS) and as discriminative stimuli (S_D).

In philosophical humor there are often several stimulus qualities provoking self-assertion. One of the most prevalent is the distortion of reality portrayed in its make-believe content. Distortion may result from exaggeration, the depiction of hypothetical scenes, the juxtaposition of incongruous details, and so on. It tends to elicit

assertive impulses because of the inconsistency it provokes between the image immediately perceived and the image gained from prior, direct experience with reality. The mismatch alerts the ego that a new coping effort is required, and assertive impulses are therefore mobilized.

Another source of assertive impulses is the explicit acts of aggression sometimes depicted in humor; through modeling processes the person exposed to philosophical humor containing aggressive scenes may experience a partial arousal of the drives portrayed.

Self-assertion is also aroused by discovery. To appreciate a humorous message, the audience must discover an interpretation which resolves the conceptual conflict created by the system of interrelated but inconsistent cognitions in the item. As with the successful resolution of a problem, the moment when the humor is "understood" gives a sense of triumph which, through response generalization, produces an increased readiness to assert the self against other obstacles.

But assertive responses have still another, perhaps more important, origin in the meaning conveyed by the reinterpretation. A danger that once threatened the ego's sense of competence is belittled, augmenting the ego's phenomenological estimate of its resources.

Philosophical humor is thus thought to generate self-assertion from the alarm created by its distortion of reality, from the modeling of aggressive acts, from successful problem-solving, and from a comforting reappraisal of harming stimuli.

The dependency reaction originates in a similar manner but derives from an entirely different set of stimulus qualities. Playful cues, for example, are able to serve as discriminative stimuli eliciting

dependency by virtue of their past association with harmless situations. The members of the audience have learned to expect some sort of comforting reinforcement when a joke is being told or a cartoon presented. Because they have been rewarded with delight, insight, laughter, and the like in the past, they anticipate similar pleasures and adopt a receptive orientation toward the humor. In addition, playful cues can serve as drive stimuli gratifying dependency needs when they evoke such responses as a sense of security.

Make-believe cues also can serve as both discriminative and drive stimuli with respect to dependency. They elicit dependency through their past association with harmless situations, and their novelty and complexity are capable of reinforcing behavior through cognitive arousal (Berlyne, 1960, 1969).

The last source of dependency is the dependent behavior often modeled in philosophical humor. Whether it is a soldier's simple, foolish grin while observing a supposedly frightful engine of war (Figure 1), a trustful and carefree abandon manifested by a group of holiday revelers (Figure 2), or a need for physical closeness in an elderly couple (Figure 4), philosophical humor models dependent acts which the audience will imitate.

It is of the utmost importance that regression accompanies the arousal of self-assertion and dependency. First, the affective responses produced by the self-assertion and dependency stimuli are probably unusually intense due to the audience's regression. Second, the audience's regression makes available a large repertoire of over-determined symbolic responses to serve as valuable mediators. Thus, by virtue of their pre-existing conditioned association with numerous

affective responses, these symbolic responses evoke a multitude of intermediary responses which are able to provide a ready network through which the self-assertion and dependency responses can be joined. Clearly, such "fluid" conditions are exceptionally favorable for the formation of new and powerful response aggregates.

The balance between self-assertion and dependency is by no means always perfect, but all humor deserving to be called philosophical by our definition arouses both responses to at least some extent. An item arousing only aggression and feelings of superiority cannot possibly be seen as "wise" and "temperate"; hostile humor (e.g., Berkowitz, 1970) suffers from this excess. Humor that provokes only submission and self-abasement is too masochistic to be "dignified"; gallows humor is sometimes deficient in this respect (Grotjahn, 1957). Neither alone satisfies Freud's requirement that philosophical humor be "elevating" to the audience.

Proposition V. *The reinterpretation conveyed by philosophical humor provokes a comforting cognitive reappraisal of the harmful stimulus.*

Primary and secondary appraisal are highly cognitive. It is the global meaning evoked by a stimulus configuration that is crucial in appraisal, not some simple summation of the various response components that could conceivably be evoked by the separate stimuli. For example, a criminal who has been sentenced to execution and led into the electrocution chamber will not experience as intense a threat reaction as he normally would if he knows that the only possible supply of electric current has been permanently destroyed. Note that no physical cue need actually be perceived for him to reorganize his entire appraisal of the chair before him. A symbolically communicated message from a trusted

friend is all that he may require. In short, the cognitive processes underlying appraisal enable it to be profoundly affected by the modification of only a few cues when such cues decisively alter the overall meaning of an important stimulus configuration.

The reinterpretation offered by humor is like the above message from a trusted friend. It implants new, less threatening images of harming stimuli that leave an enduring effect on appraisal. Consider the effect of a cartoonist, for instance. What is important when he exaggerates a politician's physical traits to suggest certain foibles is not the momentary disgust or whatever other negative affect that might condition to the politician's former image, but rather the very restructuring of the image itself. The audience's cognition of the man is thereafter mediated by the new image, not the old, and this image in and of itself is capable of evoking negative affect solely on the basis of either innate dispositions or of prior habits.

The preceding propositions lead to the following comprehensive assertion concerning the general effects of exposure to philosophical humor.

Proposition VI. *Philosophical humor restructures the global response to harming stimuli and harm symbols through a series of events involving regression, sensitization, threat, cognitive reappraisal, and drive integration. The resulting insight enables a person to make a more adaptive response to the kind of threat provoked by essentially ungovernable causes. A person capable of attaining the reappraisal acquires a positive attitude toward philosophical humor because of the satisfactions accompanying discovery and the reduction in threat he obtains.*

The regression evoked by humor enables members of an audience to be fully receptive at their most impressionable and defenseless layers of functioning. The first by-products of regression are sensitization

to harm symbols and mild threat. The ego, if left to its excessive rationality and consistency, would normally select either self-assertive or dependent impulses as the person's predominant response to the threat. But neither response is entirely appropriate toward the dangers that are beyond a person's control. By enabling these opposed impulses to be joined into a balanced, well-integrated drive, the fluidity of the regressive state contributes substantially to the adaptive quality of the entire response.

At the same time, reinterpretation enhances the person's perception of himself as someone able to cope effectively with life. This appraisal has a special potency when discovery and reinterpretation fuse into a single statement conveying a sense of irony. Irony provides an effective resolution to the conflict produced by a person's quest for union and eternal vitality in the face of his inherent limitations and mortality. Seeing the foolishness in one's anguish engenders an illogical but comforting sense of mastery.

The central contention of the present theory is that philosophical humor produces a form of therapeutic insight. After reviewing the differing conceptions of insight which have been proposed since the advent of psychoanalysis, Singer (1965) rejected the one-sided emphasis on either intellectual or emotional processes that is found in some schools of psychotherapy. He advocated the conception set forth by Sullivan (1947), Rogers (1951), Fromm (1956), and others, who saw therapeutic insight as a form of creativity. According to Singer, insight results when the person is encouraged first to loosen his defensive guard, then to attend to certain aspects of his experience which he had previously ignored, and finally to ruminate on these new experiences at the primary

process level until a profound reorganization of both his cognitive and emotional responding occurs spontaneously.

A similar pattern results from philosophical humor. Sensitization and threat arousal make the person more aware of his vulnerability, but reinterpretation and the formation of a balanced set of drives enable him to feel better prepared to cope with his situation. He is more able emotionally to accept his fate but is also more willing to reassert himself in those ways that will be productive. This experience produces mirth and pleasure partly because of the joy accompanying discovery and partly because of a new sense of mastery and affiliation.

No report has yet been published of an attempt to demonstrate that philosophical humor produces insight, but Epstein and Smith (1956) found humor appreciation to vary positively with degree of existing insight.

The person who successfully attains insight should express a positive attitude toward philosophical humor because of the therapeutic rewards it provides.

Proposition VII. A person's response to philosophical humor can be inadequate in one of two ways. First, when a person fails to regress he is unaffected by the humor and indifferent toward it. Second, when he regresses without retaining sufficient ego control over primary process, he experiences an intense threat reaction resulting from his failure to grasp or accept the intended reinterpretation; the enhanced social defensiveness and accompanying negative affect cause him to dislike the humor.

An inadequate response to philosophical humor is defined as a failure to experience an increase in self-esteem and emotional acceptance of vulnerability after exposure to the humor. This definition is useful only to the extent that the organismic variables related to an inadequate response can be specified. Unfortunately, the extensive

literature on the failure to appreciate emotionally charged humor is so contradictory that it provides almost no assistance in specifying such variables. General theoretical considerations will therefore have to be followed.

The above theory suggests a relatively straightforward model with which to postulate the effects philosophical humor has on different types of individuals. The degree to which a person can regress in processing humor, for example, should largely determine whether or not he will be susceptible to its influence. When unable to regress, he will remain unaffected and consequently indifferent. When able to regress, the manner in which he does so determines the type of effect the humor will have on him. Some individuals are made so uncomfortable by the mere reference to harm that the playfulness, make-believe, and reinterpretation they are offered constitute insufficient reassurance to counteract the threat which the harm symbols evoke. Their inability to maintain adaptive control over the regression hence results in disgust toward philosophical humor and a decrease in ego strength. On the other hand, individuals who can retain partial control over their regression by keeping the reassuring qualities of the humor in mind are able to restrain threat, accept the reinterpretation, and ultimately procure an enhancement of the self.

If these assumptions are valid, it should be possible to predict how philosophical humor will affect a person by considering how he evaluates such humor.

EXISTING EMPIRICAL SUPPORT FOR THE THEORY

Since existing research on humor and regression provided considerable inspiration for the theory, the most relevant studies in this

literature will be reviewed in order both to acknowledge the debt owed to them and to indicate the strengths and limitations of current knowledge about philosophical humor. The latter purpose is especially important, as such a discussion will provide a context in which to evaluate the contribution of the experiment which is reported below.

Regression and Art

The role of regression in art appreciation has not been studied empirically, but Wild (1965) reported intriguing data supporting its role in artistic creativity. She compared fine art students, teachers, and hospitalized schizophrenics on a special measure of adaptive regression developed from the Word Association and Object Sorting tests (Rapaport, Schafer, and Gill, 1945 and 1946). The subjects were given each test three times and normal procedures were followed with the exception that subjects role-played a highly regulated person on the second administration and a highly unregulated person on the third administration. Their responses were scored as either original or conventional on the basis of word association norms. Adaptive regression was defined as the difference in the number of original responses given under the regulated and unregulated conditions.

On both tests the art students had higher shift scores than the teachers and schizophrenics, thus supporting Wild's hypothesis that artistic creativity is related to adaptive regression. Since Getzels and Jackson (1962) found a good sense of humor to be one of the most distinguishing characteristics of creative adolescents, the relationship between creativity and adaptive regression found by Wild directly supports our hypothesis that humor appreciation is positively related to adaptive regression.

Regression, Humor Appreciation, and Adaptive Functioning

If the processing of humor indeed relies heavily on regressive modes of thought, then ratings of humor appreciation ought to be positively related to the tendency to use regression as a defense. Weiss (1954) reported data supporting this hypothesis, and Roberts and Johnson (1957) obtained results that could be taken as further support if it can be assumed that the ability to empathize with other people's feelings partly depends on one's ability to experience one's own feelings consciously through adaptive regression. In the latter study, psychiatric inpatients' funniness ratings of cartoons correlated significantly with clinicians' ratings of the patients' capacity for empathy ($r = .42$) and with the patients' scores on an empathy questionnaire ($r = .54$).

A study by Rosenwald (1964) confirms the importance of the adaptiveness of regression. He had subjects tell stories to eight cards from Murray's (1943) Thematic Apperception Test (TAT) and then asked them to categorize neutral and hostile cartoons as either Liked, Indifferent, or Disliked. The TAT protocols were scored for intensity of drive expression following Pine's (1960) coding scheme.

Pine's scheme contains three levels of drive expression. Subjects giving *direct-unsocialized* drive representations (e.g., reference to murder, violence, adulterous seduction, homosexuality, drunkenness) are classified as Impulsive. Subjects who give *direct-socialized* drive representations (e.g., legitimate sexual expression, arguments without physical violence, social drinking, kissing, childbirth) are called Labile. And subjects giving *indirect-disguised* or *weak* drive representations (e.g., mention of restaurants, police, accidents,

natural death, union strikes, expressions of familial affection) are classified as Constricted. The Labile orientation corresponds most closely to what we are calling high adaptive regression in that it permits direct contact with primary process material without allowing primitive impulses to overwhelm the person.

Rosenwald's data contained an interaction of considerable relevance to Proposition I. The bland, neutral humor was appreciated most by the Constricted and least by the Impulsive subjects (appreciation was defined in terms of a Like minus Dislike score). But the hostile, emotionally involving humor was most appreciated by the Labile subjects and least by the Constricted. This pattern conforms perfectly with Kris' (1952) theory. Persons who fear regression (the Constricted subjects) should prefer humor with little emotional content, whereas those who have learned to regress in a controlled, adaptive manner (the Labile subjects) should prefer emotionally charged humor. The Constricted subjects also expressed greater indifference to hostile cartoons in comparison with other subjects, thereby further revealing their dependence on repression—assuming that indifference, as Fenichel (1953) has suggested, can be a defense against unacceptable impulses.

The Impulsive subjects present an excellent example of regression without ego control. They expressed both more liking and more disliking for the hostile as compared to the neutral cartoons. Rosenwald described their response as "ambivalent" and lacking in "balance."

Three studies have found a negative relationship between repression and the appreciation of emotionally toned humor (Epstein & Smith, 1956; O'Connell, 1964; and Ullman & Lim, 1962), supporting our contention that philosophical humor contains threat-provoking harm symbols.

Finally, a number of studies have found a positive relationship between healthy psychological functioning and appreciation of emotional humor. Psychiatric patients appreciate humor less than normals (Levine & Abelson, 1959; Levine & Redlich, 1960; and Verinis, 1970) and are more likely than normals to differentiate their response in accordance with the amount of drive portrayed in the humor (Levine & Abelson, 1959). Roberts and Johnson (1957) found humor appreciation to correlate positively with clinical ratings of reality contact among psychiatric inpatients ($r = .38$). Moreover, four studies have found a positive relationship between various indices of psychological adjustment and humor appreciation among normals. Roberts (1958) found humor appreciation to correlate with absence of psychopathology and ego strength, Darmstadter (1964) found appreciation of aggressive and neutral humor to vary positively with levels of ego strength, Grossman (1966) found enjoyment of cartoons in areas of personal significance to relate to ego strength, and O'Connell (1960) found well-adjusted normals (low self-ideal discrepancy) to appreciate philosophical humor more than poorly adjusted normals. The only non-supportive results were reported by Byrne, Terrill, and McReynolds (1961), who failed to find differences in humor appreciation as a function of scores on McReynolds' (1958) test of incongruity.

In general, these studies suggest that the appreciation of philosophical humor is positively related to the degree of balance between two somewhat opposed responses—an openness to emotional stimulation and the ability to retain appropriate ego regulation over emotional discharge.

The Appreciation of Hostile Humor

Sears' (1934) theory, in addition to the schematic elements discussed earlier, examines what he called the thematic aspects of humor. Here he developed a balance theory that is capable of subsuming the existing research on the variables affecting the appreciation of hostile humor.

Sears used the term *mirth thema* to refer to the generalized pattern of action or behavior depicted in a humorous item. (It can be thought of as deriving from what we are calling harm symbols, reinterpretation, and drive content.) Sears proposed that a person's attitude toward a cartoon or a joke depends on the valence of the affective bonds the person holds for the major character(s) portrayed. In correspondence with Heider's (1958) balance theory, an *affiliate* is an *o* whom *p* likes and an *excluded entity* is an *o* whom *p* dislikes. Sears reasoned that humor could either *praise* (benefit) or *degrade* (harm) its major character. The predictions derived by Sears are similar to those that Heider would make: Humor is enjoyed only when either an affiliate is praised or an excluded entity is degraded.

The results of numerous studies confirm Sears' theory in general (Elbert, 1961; La Fave, 1961; Murray, 1934; Sears, 1934; Priest, 1966; and Wolff, Smith, & Murray, 1934), but perhaps the most convincing support with regard to aggressive humor comes from studies by Gutman and Priest (1969) and Singer, Gollob, and Levine (1967). Gutman and Priest systematically manipulated eight jokes in such a manner that the behavior of an aggressor and his victim varied in social acceptability. The aggression always involved derision or sarcasm, and the punch-line remained the same for each version of the joke. The results showed that

when the aggressor's pre-attack behavior was seen as socially acceptable and the victim's was not, the audience found the aggressor's subsequent squelch relatively amusing. Likewise, when the aggressor's behavior was unacceptable and the victim's was acceptable, the hostile humor was disliked. The two conditions in which the characters' respective behaviors were either both socially acceptable or both socially unacceptable generated intermediate levels of amusement, as would be expected.

In the Singer *et al.* study, subjects were exposed to one of two pre-humor conditions designed to manipulate inhibition of aggression; they then rated nonsense, mildly aggressive, and highly aggressive cartoons. To manipulate inhibition they showed subjects paintings by Goya depicting either benign social scenes (Control) or scenes showing "the brutal and sadistic treatment of innocent people" (Inhibition). Sears' theory would predict that the Inhibition condition enhanced the subjects' affiliation with the victims they saw in the pictures, leading them to deny their own aggressive impulses as a way of excluding themselves from the aggression. Consequently, they would not enjoy the hostile humor which followed. As predicted, the Inhibition group appreciated the highly aggressive cartoons less than did the Control group, whereas there was no significant difference between the groups on the nonsense and mildly aggressive cartoons.

Finally, if hostile humor raises self-esteem by degrading excluded others, then a person who has lost self-esteem as a result of an attack should find aggressive humor directed against excluded others more reinforcing than he would had he not been attacked. This hypothesis is supported by data showing that anger increases the appreciation of hostile

humor (Dworkin & Efran, 1967; La Gaipa, 1968; Strickland, 1959). Byrne (1961), Hetherington and Wray (1966) and Singer (1968) found no effect or equivocal effects, but no strictly negative effects have been reported. On the assumption that high need aggression reflects a past history of being the target of others' aggression, the hypothesis is further supported by studies showing need aggression to be positively related to appreciation of hostile humor (Byrne, 1956; Grziwok & Scodel, 1956; Hetherington & Wray, 1964; Vogel, 1958).

Together, Sears' (1934) theory and the supporting research suggest that humor depicting clearly hostile behavior is amusing only when the aggression is acceptable to the person's ego.

The Effects of Humor on Subsequent Functioning

The most definitive study examining the effects of humor on aggression was reported by Berkowitz (1970). He hypothesized that hostile humor, by reinforcing anger, improves an angered subject's mood but does not decrease aggressive impulses. According to Berkowitz, the witnessed aggression may in fact facilitate the release of subsequent attacking behavior by enhancing the aggressive cue value of the tormentor through stimulus generalization.

Berkowitz's results are consistent with his predictions. Women who had been insulted by someone they thought was a job applicant and had then listened to hostile humor expressed a more positive mood on subsequent self-ratings than did women who had been angered but not subsequently exposed to the humor. Moreover, the group hearing the hostile humor manifested more aggression toward the "job applicant" than did the group not hearing the humor.

The finding that improved mood can accompany enhanced aggression is extremely important. Previous research, tending to confuse these two variables, had concluded that hostile humor exerts a "cathartic" effect on angered subjects because self-reported mood was more positive when subjects were subsequently exposed to hostile humor than when exposed to no humor (Dworkin & Efran, 1967; Singer, 1968). Berkowitz's data confirm the enhanced mood which these other studies had found but also show that such mood changes do not necessarily indicate a catharsis effect.

Berkowitz's data are consistent with his predictions, but there is reason to take issue with his conclusions. In order to preclude the plausibility of interpreting his data in terms of self-enhancement processes, Berkowitz had selected the hostile humor so as to exclude items in which someone similar to the subjects' tormentor was directly belittled. He reasoned that seeing a tormentor directly attacked might restore a person's self-esteem by reducing the tormentor's threatening qualities. But many theorists (e.g., Bergson, 1908; Freud, 1938; Hobbes, 1651) have argued that hostile humor *in general* enhances self-esteem by providing a "sense of superiority" to the audience. Berkowitz did not take this possibility adequately into account. Ridicule directed at generalized others can be seen as ego-enhancing because it serves to dissociate the self from the annoying actions and mannerisms of others.

It seems more plausible that the humor used by Berkowitz improved the angered subjects' mood by raising their self-esteem *vis à vis* the world in general rather than by reinforcing their anger. This interpretation of the mood change also provides a more reasonable

interpretation of the one existing study (Landy & Mettee, 1969) that might appear to contradict Berkowitz's theory of catharsis, which contends that a person must consciously experience his aggression before it will be cathartic. Landy and Mettee's study will be analyzed in some detail because it offers valuable support for one of the general conclusions we are proposing—namely, that the ultimate effects from exposure to humor reside, to a large extent, in changes in the ego.

In a counterbalanced design, a first experimenter insulted a subject in the presence of another subject. A second experimenter then exposed half the subjects to humorous cartoons and half to non-humorous pictures and had all subjects rate their liking for the first experimenter. Subjects in the humor condition expressed more liking for the first experimenter than did those in the no humor condition regardless of whether it was the subject himself who had been insulted or whether he had merely witnessed his counterpart being insulted.

Landy and Mettee were loathe to draw any firm conclusions about the psychological process responsible for the greater liking of the first experimenter that was expressed in the humor condition. They believed the liking could have reflected either catharsis or a form of counterconditioning in which the pleasant impulses evoked by the non-hostile qualities of the humor counteracted the aggression.

Berkowitz (1970), however, openly rejected the catharsis explanation of their data on the grounds that the humor they had used was not capable of producing a clear and consciously experienced aggression. This contention is probably true, since Landy and Mettee had described their humor as a mixture of hostile and non-hostile cartoons and had

found only one subject who could spontaneously identify the hostile nature of the humor during a postexperimental interview. In place of the catharsis hypothesis, Berkowitz supported Landy and Mettee's counterconditioning hypothesis and also proposed that the humor may have reduced the instigator's aggressive cue value.

Counterconditioning processes and the alteration of cue value may have been operating to a limited extent in Landy and Mettee's experiment. But, in light of certain theoretical considerations, a third set of processes would appear to have played a more decisive role in enhancing the subjects' liking for the first experimenter. The aggressive humor should have enhanced the subjects' self-esteem through its ridicule of annoying people in general. Because the subjects who received the humor treatment felt less threatened generally, they were able to reflect on the first experimenter's insult with greater equanimity. They then expressed greater liking for him than did the controls because he threatened them less.

But this line of reasoning does not explain why the ratings of subjects in the humor condition did not also contain the countervailing force of enhanced aggression, as Berkowitz had found. With improved mood working to raise the ratings and enhanced aggression working to lower them, one might have expected the ultimate effect to have produced ratings in the experimental condition which differed little from those in the control condition.

Berkowitz's (1965) theory of aggression offers an explanation for this absence of hostility. He has argued that a victim must perceive his retaliation as potentially harmful to his tormentor before he will avail himself of it to alleviate anger. Because the ratings in Landy

and Mettee's experiment could not be seen as damaging to the experimenter in any way, they were probably not used as a channel through which to express the increased aggressiveness possibly resulting from the exposure to hostile cartoons.

In summary, reinterpretation of both Berkowitz's and Landy and Mettee's data strongly suggest that the primary effect of hostile humor lies in its enhancement of the ego. This emphasis on the role of the ego is consistent with Sears' (1934) theory and the research confirming it, in which the major variable affecting appreciation of hostile humor appears to be the degree to which the depicted aggression is ego syntonic for the audience.

Sexuality.—Only one study (Porr, 1961) has investigated the effects of humor on expression of sexual impulses. Porr measured the effects of sexual arousal on appreciation of subsequent sexual and neutral humor and the effects of both arousal and exposure to humor on the expression of sexual impulses, anxiety, guilt, and conflict on the TAT. His subjects were male undergraduates. He hypothesized that (a) appreciation of sexual cartoons would be enhanced by sexual arousal, and (b) exposure to sexual cartoons would reduce sex-related anxiety, thereby enhancing the expression of sexual impulses.

Sexual arousal did not significantly increase appreciation of sexual cartoons except for one highly scopophilic cartoon, but Porr's results pertaining to the effects of exposure to humor were quite enlightening. Partly contrary to his prediction, exposure to either form of humor enhanced expression of sexual impulses relative to the no humor control condition in both aroused and non-aroused subjects.

It was therefore the humor *per se* that disinhibited subjects, not the specific treatment of sexual content in a humorous fashion. He also found among non-aroused subjects that more personal aggression was expressed in the two humor conditions than in the no humor condition.

These findings are quite relevant to the contention that all humor induces a regressive mode of thinking characterized by freer contact with primary process material.

First, however, let us consider the interpretation which Porr himself offered for his data. He saw the enhanced expression of sexual and aggressive impulses as reflecting an alteration of the experimenter-subject relationship. Subjects were thought to have been reluctant to reveal any conflictual material in front of an authority figure like the experimenter (who was also their teacher). The experimenter might be insulted. By having authorized subjects to appreciate emotionally charged humor in his presence, he was believed to have unwittingly sanctioned the subjects' expression of personal feelings. Both sets of cartoons were thought to have performed this function because even the non-sexual cartoons had relied on emotional themes of one kind or another.

In contrast to Porr's interpretation, the present study maintains that the treatment of conflictual material in a humorous manner rendered it less threatening to the ego. By permitting the ego to entertain this material, the humor had enabled the subjects to express anxiety and conflict more readily.

While both interpretations are consistent with Porr's basic data, the regression interpretation seems more plausible in light of Porr's internal analyses. An examination of these data would be fruitful, as the issue is of central concern.

During a postexperimental interview Porr asked subjects in the arousal condition whether they had experienced an erection while viewing the erotic material. Fourteen of 36 subjects acknowledged having had the response. In light of the relatively provocative quality of the material used in the arousal treatment, Porr assumed that almost all of the subjects in this condition had actually experienced at least a mild erection. On this basis, he further assumed that acknowledgers were low and non-acknowledgers were high in defensiveness with regard to sex.

SEXU-

If Porr's demand-character explanation of the disinhibition effect is valid, non-acknowledgers should have shown greater disinhibition as a result of viewing the cartoons than did acknowledgers because they were probably more defensive initially. Yet the results are exactly contrary to this prediction. (Unfortunately, no tests of significance are available.) Acknowledgers who viewed either type of cartoon had an appreciably higher mean manifest sex score on the TAT ($M = 6.50$, $n = 10$) than did those who viewed no cartoons ($M = 5.25$, $n = 4$), whereas non-acknowledgers who viewed cartoons had only a marginally higher mean manifest sex score ($M = 4.35$, $n = 14$) than did those viewing no cartoons ($M = 4.25$, $n = 8$). On the other hand, these data are perfectly consistent with the regression hypothesis since low-defensives should be able to regress more readily (and thereby be more stimulated by the affective content in the humor) than should high-defensives.

Furthermore, re-analysis of Porr's data reveals a tendency for acknowledgement to be elicited more readily among subjects who had viewed sexual cartoons (thereby obtaining the experimenter's

legitimization of sexual-impulse expression) than among those who had viewed either non-sexual or no cartoons ($\chi^2 = 1.77$, $df = 1$, $p < .20$). Though clearly unreliable, these data give some clue as to the actual locus of possible demand characteristics in Porr's experiment. If present at all, such demands appear to have been restricted to situations in which the subjects were asked to reveal to the experimenter what were clearly *their own feelings*, as was the case in being asked to admit having had an erection. By contrast, when they were asked to describe the feelings of other people, as in the TAT, the subjects appear to have felt much less personally responsible for the feelings they were expressing. The feelings were presumably seen to be those *someone else* would experience rather than *their own*.

To assert that no demand qualities were operating in the TAT task would certainly not be justified by the above data. But the negative relationship between defensiveness and increased affective expression as a result of exposure to humor at least suggests that demand characteristics were not the deciding factor on the projective task. Therefore, our contention that humor increased affective expression by enhancing regression appears to be more plausible than Porr's explanation based on the demand characteristics of the experimenter-subject relationship.

In general, Porr's study supports the hypothesis that humor enhances regression.

Anxiety.—A recent study by Koppel (1969) attempted to demonstrate that humor reduces anxiety. One group of subjects was made anxious by viewing one of two films depicting physical harm to a human being; the

other group saw a neutral film. Subgroups in each condition then either rated cartoons, created captions to cartoons, or performed a neutral task.

Both humor appreciation and humor creation reduced levels of self-reported anxiety significantly more than did the neutral task. These results are consistent with our hypothesis that humor reduces threat, but their having originated from a self-report task raises doubts about their validity. The subjects may have been responding to demand characteristics in the task rather than veridically reporting their mood, since most people expect humor to reduce anxiety.

Data from Porr's (1961) study appear to be more instructive with regard to this hypothesis because they derive from an indirect measure of anxiety. Porr found that exposure to either sexual or neutral humor after intense sexual arousal tended to decrease subjects' expression of anxiety and conflict on the TAT. The arousal treatment probably enhanced anxiety generally, as subjects receiving this treatment expressed more anxiety and conflict than the controls regardless of which humor condition intervened. The decreased expression of anxiety and conflict following the humor can thus be seen as a neutralization of the excessive threat provoked by the strong sexual arousal. These results suggest that humor serves to reduce anxiety which has already been aroused.

Porr obtained results in the no-arousal condition that are of considerable relevance to the experiment to be described in the present study. Exposure to both forms of humor *increased* the expression of anxious and conflictual themes when subjects' anxiety had not been aroused. The humor appears to have made subjects more sensitive to

the threatening projective material yet more capable of dealing consciously with it. This finding is consistent with the hypothesis that humor enhances adaptive regression if it can be assumed that both forms of humor contained symbols capable of sensitizing the audience to harming stimuli and that both offered a reinterpretation of harming stimuli which could have served to make harm-related cognitions more ego syntonic.

task raises

In general, these studies by Koppel and Porr indicate support for the hypothesis that philosophical humor reduces the anxiety normally aroused by confrontation with harm symbols.

acute anxiety.

Conclusions.—The above research on the effects of humor tends to support several tentative conclusions of relevance to our theory. First, exposure to humor in which antagonizing figures are ridiculed enhances the self-esteem of an angered person, thereby improving his mood. Second, humor induces a regressive mode of thinking characterized by enhanced access to primary process material. Third, philosophical humor reduces the level of anxiety and conflict under conditions of strong impulse arousal by reinterpreting harm symbols.

Finally, philosophical humor may communicate demand characteristics to a subject by legitimizing the expression of emotional content, but such effects result principally in tasks requiring expression of personalized affect rather than in projective tests such as the TAT which require expression of de-personalized affect. This finding is of relevance to the methodology employed in the following experiment.

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THE EXPERIMENT

The following hypotheses were derived from the major propositions in the theory.

Hypothesis I.—Appreciation of philosophical humor is positively related to the capacity to regress adaptively.

Ia. Overall appreciation of philosophical humor is positively related to the capacity to regress adaptively.

Ib. The differential appreciation of philosophical humor containing extensive make-believe is positively related to the capacity to regress adaptively.

Hypothesis II.—Appreciation of philosophical humor is positively related to the capacity for emotional involvement.

Hypothesis III.—The capacity to regress adaptively is positively related to the capacity for emotional involvement.

Hypothesis IV.—The effects on optimism and emotional involvement resulting from exposure to philosophical humor are positively related to humor appreciation.

IVa. Exposure to philosophical humor enhances optimism and emotional involvement in persons expressing a positive overall appreciation of philosophical humor.

IVb. Exposure to philosophical humor has no effect on optimism and emotional involvement in persons expressing a neutral overall appreciation of philosophical humor.

IVc. Exposure to philosophical humor decreases optimism and emotional involvement in persons expressing a negative overall appreciation of philosophical humor.

Hypothesis V.—Increases in optimism and emotional involvement resulting from exposure to philosophical humor are positively related to capacity for adaptive regression.

A laboratory experiment was performed to test these hypotheses. It may be summarized as follows.

During session one all subjects in the major part of the experiment took a word association test, which was designed to measure adaptive regression by determining how successfully subjects could role-play both a highly regulated and a highly unregulated person. Control subjects then rated their liking for philosophical humor while experimental subjects completed a filler task.

The experimental manipulation was introduced during the initial part of session two by having the experimental subjects rate the humor while the controls completed the filler task. In this way, a measure of humor appreciation was available for every subject but time of exposure to the humor varied between treatment groups. All subjects then completed a storytelling task from which measures of the dependent variables, optimism and level of emotional involvement, were obtained from judges' ratings. Finally, the subjects completed a postexperimental questionnaire and received a debriefing.

In a supplementary control condition administered separately, subjects completed the storytelling task first and then the word association test. The purpose of this condition was to determine if the filler task had provided a neutral experience.

CHAPTER III

METHOD

Subjects

Ninety male and 92 female students were recruited from introductory courses at the University of Florida. As compensation they received experimental credit which partially fulfilled course requirements.

Materials

Storytelling task.—Since fantasy is thought to permit a non-reactive assessment of dynamic functioning (Henry, 1956), it was used to provide measures of the two dependent variables, optimism and capacity for emotional involvement. Murray's (1943) method of eliciting and recording fantasy was modified in the following ways to obtain an instrument particularly suited to the purposes of the present investigation.

First, the task was administered to subjects in groups of up to six in order to make the inclusion of a large sample practicable. Protocols obtained through group administration are comparable, though not identical, to those obtained through individual administration (Lindzey & Heinemann, 1955).

Second, new instructions were devised that described the task as a test of artistic imagination in which the subject was to portray the inner life of another person in as interesting a manner as he could. They explicitly demanded a more serious orientation from subjects than

the fanciful one which Murray's procedures permit because the latter tends to elicit greater flippancy than would be desirable (Eron & Ritter, 1951).

Third, non-standard pictures were used in order to permit inexpensive multiple testing and the selection of appropriate stimuli. Murstein (1963) has suggested that the most suitable stimuli for a test of denial and avoidance are pictures containing unambiguous harm symbols. Since Hypothesis IV examines the tendency to defend against harm symbols, pictures of people obviously in a state of distress were selected. Denial and avoidance tendencies could then be inferred from the degree to which subjects refrained in their stories from dealing with the characters' melancholy circumstances.

Ten photographs (see Appendix A) from *The Family of Man* by Steichen (1955) were used as the projective stimuli. Seven of these were judged by the experimenter to be essentially Gloomy in tone and three as essentially Happy. They were mounted on 8 1/2" by 11" sheets of white paper which were bound in cardboard folders and numbered consecutively. The three Happy photographs appeared in positions three, six, and nine. Six complete folders were constructed.

The answer booklets contained a page of instructions and 10 pages of lined 8 1/2" by 11" paper. Each story was written on a separate page, and each page was divided into four sections entitled "Background," "Action," "State of Mind," and "Outcome."

Humor appreciation ratings.—Sixty philosophical cartoons (see Appendix B) were selected from a larger collection of over 500 cartoons published in *The New Yorker* magazine between March 1, 1969, and October 3, 1970.

The first step in choosing the philosophical cartoons was to divide the general collection into two groups—items in which the humor derived in some way from reference to contemporary manners or events (dated cartoons), and those in which it was free from such topicality (general cartoons). The dated cartoons were excluded from further consideration, as their capacity to engage various social attitudes of no direct relevance to the focus of the present study would only have unduly complicated the problem of defining the stimulus materials.

The general cartoons were then categorized by the experimenter as either passive, hostile, or philosophical on the basis of an *ad hoc* analysis. A collection of 12 passive, 12 hostile, and 86 philosophical cartoons was assembled and shown to 11 male and 8 female judges recruited from the same source as the subjects. These judges classified the cartoons in the same manner as the experimenter had done. Their instructions defined a passive cartoon as one suggesting an excessively passive or "defeatist" attitude on the part of the cartoonist and a hostile cartoon as one suggesting an excessively hostile or "nasty" attitude.

The following definition of a philosophical cartoon was given:

Philosophical humor involves an objectively stressful situation in which the principal character reacts with a jest that is relatively free of either hostility or apathy. The person recognizes and smiles at the "triviality" of the ego's concerns and says, in effect, "Look here! This is all that this seemingly dangerous world amounts to. Child's play—the very thing to jest about" (Freud, 1928).

The subjects were instructed to consider the cartoonist as the principal character in judging the tone of the cartoons. They were encouraged to disregard completely the overall pattern of their responses and to concentrate solely on their specific reaction to each cartoon. The 60 cartoons most frequently judged philosophical were then used in the experiment.

Three booklets were constructed from photocopies of the original cartoons. Each booklet featured one cartoon per page, with the pages numbered consecutively.

How to measure humor appreciation presented a problem of considerable difficulty. A great many studies have attempted to relate various personality traits to self-reported humor appreciation, providing a large literature on the construct validity of self-reported appreciation. But the results of these studies and the available knowledge concerning the personality variables themselves are so confusing and complex that the evaluation of construct validity on the basis of this research appears fruitless.

There is evidence that humor ratings are influenced by experimenter effects under some circumstances. Davis and Farina (1970), for example, found that male subjects will use their ratings of sexual humor as a medium through which to communicate interest in a highly attractive female experimenter. Young and Frye (1966) reported a correlation of .20 ($p < .005$, $df = 184$) between need approval and ratings of humor appreciation, and Hetherington and Wray (1964) reported a highly significant triple interaction in which ratings of humor appreciation varied with need approval for low (as opposed to high) need aggression subjects and for nonsense (as opposed to aggressive) cartoons. These results suggest caution but by no means prohibit the use of self-ratings. It was especially encouraging that Lamb (1968) found no statistically reliable relationship between need for social approval and either observer ratings of overt mirth or self-reported humor appreciation.

Moreover, there are several indications that a self-report measure of appreciation would be quite satisfactory for the purposes of the

present investigation. The most encouraging evidence comes from studies of concurrent validity in which ratings of appreciation were correlated with observer ratings of overt mirth. Roberts and Johnson (1957) reported a correlation of .87 between the total scores on both measures and the present writer, from data reported in a study by Heim (1936), computed a correlation of .92 between mean observer ratings of laughter per humor item and mean self-reported ratings of amusement per humor item. The only additional study reporting the relationship between humor ratings and overt mirth was Roberts' (1958) dissertation. He also found a statistically reliable relationship, but his correlations were considerably lower than those mentioned above ($r = .46$ for tuberculosis patients, and $r = .64$ for neurotics).

Three studies reporting the test-retest and alternate-form reliabilities of self-ratings offer further favorable evidence. Kole and Henderson (1966) collected a set of cartoons dealing with driving and had a group of problem drivers and a group of controls rate their liking for each cartoon; the coefficient of stability for the total appreciation score after a two week delay was .80. Similarly, O'Connell (1960) constructed three cartoon scales and obtained test-retest reliabilities of .88 for humor, .83 for hostile wit, and .80 for nonsense wit. Finally, Vogel (1958) reported a correlation of .82 between two forms of an aggressive humor scale. The economy of time which the self-ratings afforded is an additional consideration of importance.

It was decided to proceed with a self-report measure of humor appreciation because of the reasonably high concurrent validity and the rather high reliability of such measures.

Humor appreciation was rated on an 11-point scale having the following format:

1 2 3 4 5 6 7 8 9 10 11

Very negative _____ Very positive

The response booklet contained a space for the subject's name, a set of instructions, and 60 of the above scales.

Twenty of the cartoons were selected by the experimenter for inclusion in a subscale designed to measure appreciation of make-believe content. Ten of these were high in pictorial make-believe and 10 were low. The high make-believe cartoons featured such imaginary characters as monsters, satyrs, ambulatory clocks, and devils and such situations as animals or insects dreaming and talking to one another. By contrast, the low make-believe cartoons depicted scenes of strictly conventional interpersonal relations. The experimenter attempted to match the two sets of cartoons with respect to the themes they expressed.

Filler task.—Since only half of the subjects rated humor at any one time, three booklets containing 66 simple geometrical designs were constructed to provide subjects who were not rating cartoons with a control task of a comparable nature. These were rated on their artistic merit.

Word Association Test.—Adaptive regression was measured with Wild's (1965) modified word association test. In addition to Wild's original demonstration of the ability of this test to discriminate between groups thought to differ on creativity, Fitzgerald (1966) has shown that it correlates significantly with a questionnaire measure of openness to experience. It also has considerable face validity as a measure of

cognitive flexibility. Because cognitive flexibility is thought to play an important role in the discovery process, the test should correlate with humor appreciation. Whether the test also measures the ability to make contact with primary process material can be determined from its correlation with level of response.

The word lists developed by Wild (1965) and the associative norms developed by Rapaport *et al.* (1945) and Palermo and Jenkins (1964) were used to score the Word Association Test, which has been described on P. 45. Three sets of booklets were constructed, one for each list of words. A booklet contained thirty pages of 2 1/4" by 4 1/2" paper. The pages were numbered consecutively, with each containing one of the 30 stimulus words.

Postexperimental questionnaire.—The subjects' reactions to the experiment were assessed through a postexperimental questionnaire modeled after one used in a study of subject suspiciousness by Rubin and Moore (1971). These investigators found that asking subjects for their *impressions* of an experiment yielded more valid responses than did asking for their *recollections*. They used a postexperimental interview to assess validity. The fairly high degree of correspondence between questionnaire response under impression instruction and interview responses suggested that the questionnaire would suffice for the purposes of the present study.

The following questionnaire containing seven open-ended questions was developed (the critical items are starred):

- 1) Briefly describe the Word Association Test you took during the first session.
- *2) What is the general purpose of the entire experiment?

- 3) About how many cartoons have you rated as a part of this experiment?
- *4) What was the purpose of the cartoon rating task?
- 5) Describe the general character of the photographs used in the storytelling task.
- *6) What was the purpose of the storytelling task?
- *7) Any further comments which you believe would be of interest to the experimenter.

Design

The basic design was a $2 \times 3 \times 2 \times 2$ factorial with repeated measures on the last factor. The variables were treatment (Humor or No Humor), moderator variable (Positive, Neutral, or Negative on humor appreciation), sex (male or female), and pictures (Happy or Gloomy). The same data were re-analyzed on the basis of a second moderator variable (High, Medium, or Low on adaptive regression).

Subjects were randomly assigned to one of the two treatment conditions with only the constraint that an equal number of males and females be assigned to each condition. They were assigned *post hoc* to levels of humor appreciation or adaptive regression on the basis of a tercile division of the subjects' humor appreciation ratings or adaptive regression shift scores. These divisions were made separately for the two treatment groups and for the two sexes. The repeated measures factor was derived by dividing the ten pictures used in the storytelling task into two parts—three Happy and seven Gloomy pictures. The design resulted in 12 completely randomized cells containing subsamples of $n = 13$ for a total of $N = 156$.

A supplementary control condition of 12 male and 14 female subjects ($n = 26$) was included as an auxiliary to the basic design. Its purpose

was to determine if the filler task used in the regular control condition had had any influence on responses on the storytelling task. The data from this condition were analyzed solely on the basis of treatment and pictures.

Procedures

The following procedures pertain to the main part of the experiment. Seventy-eight male and 78 female subjects were used.

Session one.—Subjects reported to the experimenter's laboratory in groups varying in size but never containing more than three males and three females. During the first part of the initial session, they were seated together around a table. They were first informed that the study would involve humor and creative imagination and that they would complete two tasks during the session.

The Word Association Test was then administered. Subjects first responded under the spontaneous condition using Rapaport *et al.*'s (1945) standard instructions. The test was then repeated with a second set of stimulus words under a set of role-playing instructions in which subjects were asked to give the responses that they believed a regulated person would give. The character sketch for the regulated person was as follows (Wild, 1965):

"R"

R is apt to blend into his surroundings wherever he is. He lives by custom and convention and finds it easiest to follow the habits of the group he is in. He listens to the opinions of others before making up his mind and tends to go along with the crowd, so that most of his ideas, tastes, likes, and dislikes come from the outside. Always reliable and dependable, he can be counted on to do the right thing in any situation and to give sensible advice. He is startled by unaccustomed and unexpected occurrences,

reacting to them with clichés and aphorisms, and prefers an orderly, predictable world. His world is simple, clear, and structured; things are good or bad, stupid or intelligent, happy or sad. He has a knack for solving practical problems and values good common sense. But what is not sensible he regards as suspicious and dangerously aberrant. His thinking is cautious, careful, and controlled; and he does not allow his thoughts to stray from well-traveled, ordinary paths. R usually thinks, reads, eats, believes, perceives, and acts like everybody else; and this is the way that suits him best.

The role-playing instructions were those developed by Wild (1965):

Now, I'd like you to take the Word Association Test you had before as this person would take it. So respond to each word that is read to you with the *one* word you feel would first come into his mind. This may not be the first that comes into *your* mind—you may want to find another word you think he would be more likely to give.

Finally, subjects repeated the task with a third list of words under the unregulated condition. Wild's character sketch for this condition was as follows:

"U"

Most people who meet U remember him because he stands out from any group. He has a novel, unusual turn of thought and is apt to be seized and intrigued by some unexpected aspect of his surroundings that no one else has noticed. His views and opinions sometimes startle those around him. His whimsical, vivid, yet acute perceptions cast a new light on anything he comes in contact with, whether it be a poster, a parade, a book, politics, a rainstorm. He points to the comic in the tragic and the seriousness in comedy, the order in chaos and the disorder in structure, the absurdity in the rational and the logic in the absurd. He enjoys and engages in fanciful speculations and flights of imagination; and his thoughts often leap from one topic to another with no obvious link, so that the direction that underlies them may be obscured. He is different without trying to be so.

Subjects followed the same instructions they had previously been given in the Regulated condition. They were not timed under any of the three conditions.

Upon completion of the Word Association Test, subjects were handed an envelope containing either the folder of philosophical cartoons or the folder of artistic designs together with an appropriate response booklet and instructions. Since this distribution constituted the preliminary stage of the experimental manipulation, it was made on a random basis. The only influence that the experimenter exercised was to balance, as much as possible, both the number of experimental and control subjects and the number of male and female experimental subjects run in any one session.

The subjects were truthfully informed that half of them would be rating cartoons and half artistic drawings during the first session, but they were deceived into believing that the purpose of this arrangement was to enable the experimenter to manage with only three booklets of each type. They were told that in the second session they would rate the materials which they had not completed during the first session.

After receiving these instructions the subjects were asked to seat themselves in one of six booths, to remove the materials from the envelopes, and to follow the written instructions accompanying the materials. The folder of cartoons contained the following instructions:

Accompanying this booklet is a red folder containing 60 cartoons. Your task is to read each cartoon and immediately rate how much you enjoy its humor. The response sheets included in the present booklet provide a set of 60 scales on which you are to make these ratings. Here is a sample scale:

1 2 3 4 5 6 7 8 9 10 11

Very negative : _____ : _____ : _____ : _____ : _____ : _____ : _____ : Very positive

If you enjoy a cartoon, check one of the five spaces on the extreme right of the scale. Increasing

degrees of enjoyment are indicated as you move from left to right, so that space "7" is for a cartoon toward which your reaction is slightly positive while space "11" is for one toward which your reaction is very positive.

If you do not enjoy a cartoon, check one of the five spaces on the extreme left. Increasing degrees of negative reaction are indicated as you move from right to left. Space "5" therefore represents a cartoon toward which your reaction is slightly negative, while space "1" represents one toward which you are very negative.

Finally, check space "6" if you find that you are primarily indifferent to a cartoon.

Do not puzzle over a cartoon for more than a few moments. Rate each on your first impression. If you come across one you cannot understand, rate whatever reaction you have and go on.

Do not deliberately attempt to distribute your ratings over the whole range of the scale unless your actual reactions range equally as far. For example, if your reactions to all of the cartoons are positive or all are negative, your ratings should faithfully reflect these reactions. In other words, "Call them as you see them" without regard to how frequently you use any one segment of the scale.

You may now begin the task by turning to the first cartoon in the red folder. The rating scales begin on the next page of this booklet. PLEASE REFRAIN FROM LAUGHING OR CHUCKLING ALOUD AS YOU READ THE CARTOONS, AS THIS WILL DISTURB YOUR FELLOW SUBJECTS.

The instructions for the filler task were as follows:

The enclosed green booklet contains 66 graphic drawings which you are to rate on a seven-point scale ranging from "Of no artistic merit" in category 1 to "Of high artistic merit" in category 7. You are to place a check in the space that corresponds most closely to your evaluation. The drawings were Xeroxed from a book and are not of uniform quality. Try to ignore whatever imperfections have resulted from the reproduction process.

Begin with the first drawing and thereafter take each one consecutively as they are numbered. Rate a drawing as soon as you have studied it for a few moments, and do not go back to change any previous ratings.

The last page of the booklets contained another set of written instructions requesting subjects to place, on hooks that were visible

to the experimenter, a pink card lying on the table in each booth. When all of the subjects had completed this operation, the experimenter requested that they return to their original seats at the large table. He then reminded them to return to the laboratory in a week for the second session and dismissed them.

Session two.—After again being seated together at the table, the subjects were given envelopes containing whichever rating task they had not completed the week before, were asked to take seats at the booths, and instructed to proceed as they had the week before. When all subjects had indicated their completion of this task, the rating materials were collected and the materials for the storytelling task were distributed.

The written instructions for the storytelling task were as follows:

This is a test of your artistic imagination. I want to know how effectively you can portray the inner life of another person. You will be shown ten photographs. For each photograph tell a story in which you describe the feelings and thoughts of the people featured in as *interesting* a manner as you can. You should mention at least something about:

- 1) *Background*—What has led up to the events shown in the photograph?
- 2) *Action*—What is happening at the moment?
- 3) *State of Mind*—What are the characters feeling and thinking?
- 4) *Outcome*—How will the present situation end?

The answer sheet is divided into four sections to assure that you will have space for each of the above topics. Do not use the space allocated for one topic in order to continue writing on the preceding topic—just stop writing when you get to the word (Stop) and go on to the next topic. You are free to erase what you have written if you wish to rewrite or eliminate it.

You will be allowed five minutes to complete a photograph. The experimenter will inform you at the end of every five minute period and you are to cease writing at this signal. After a momentary rest period,

he will instruct you to begin the next picture. At this time you should turn to the next photograph and begin writing the next story on the appropriate page of your booklet.

PLEASE write as legibly as you can.

The experimenter supplemented the written instructions by reminding subjects verbally to write at least one sentence under each heading and informing them that he would pace them by announcing when two minutes and thirty seconds and four minutes and thirty seconds had elapsed. They were told to begin completing their stories when the second announcement was made.

The subjects were then instructed to begin the first story, and the timing procedures outlined in the above instructions were followed until the tenth story was completed. The subjects were then requested to ascertain whether they had written at least one sentence under the outcome heading of each story and were instructed to complete any outcome for which this had not been done.

The postexperimental questionnaire was distributed upon the subjects' completion of the storytelling task. The instructions for the questionnaire read as follows:

You have just completed a long and involved experiment. Some of the things of interest to us in this study are the impressions subjects have about what is happening and how they react to various aspects of the situation. This questionnaire contains a number of questions about the experiment, and we would like you to answer them as fully and candidly as possible, in terms of your impressions of what went on.

When subjects had completed the questionnaire they were reseated at the table and debriefed concerning the purpose of the study and the nature of the deception. They were then dismissed.

Supplementary control condition.—Subjects in this condition were seated at the large table and informed of the purpose of the study in the same manner as the regular subjects. Unlike the regular subjects, however, they completed the storytelling task first and then rated the philosophical humor as a basis for matching them with the regular control subjects. They did not complete the Word Association Test or the filler task but were debriefed and dismissed immediately after completing the humor ratings.

Ratings

Seven undergraduates of above average academic standing were recruited to score the subjects' responses to the Word Association Test and rate those to the storytelling task. They received five quarter hours of course credit in individual work in psychology from the University of Florida as compensation for their collaboration in the study.

Optimism was measured from ratings of the outcome rather than of the main body of a story because the former should reflect ego strength more accurately than the latter. The faithful reporting of unhappiness in an objectively gloomy scene is ambiguous—it could indicate either psychological strength (low defensiveness) or depression. But a person's capacity to see hope for the future in spite of the gloom immediately before him should indicate a resiliency rather than a weakness in the ego. Some empirical support exists for this assumption. Coleman (1947) found that a group of children living in an orphanage told predominantly unhappy stories to the TAT, but gave mostly happy outcomes. Forty-one percent of the stories with a discernible ending changed from

an unhappy plot to a happy ending, whereas less than three percent turned a happy plot into an unhappy ending. A similar finding was reported by Sarason and Sarason (1958). Eron, Terry, and Callahan's (1950) procedure for scoring the emotional tone of story outcomes was used, as it is simple and of satisfactory interrater reliability ($r = .86$).

Their scale contained the following five points: +2 very happy, +1 happy, 0 neutral, -1 sad, and -2 very sad. It was further subdivided at intervals of .20, but these points were not defined. A more complete description of the scale can be found in the original report (Eron *et al.*, 1950).

Terry's (1952) procedure for scoring level of response was used to measure the emotional involvement in the stories. Her procedure had provided satisfactory interrater reliability ($r = .88$) and permitted fairly rapid scoring. Moreover, the measure appeared sensitive to the kind of subtle fluctuations in mood which were under investigation, as she found involvement was lower under group administration than under individual administration.

This latter finding might appear to have discouraged the use of group administration. But Eriksen and Pierce (1968) maintain that studies of defense mechanisms should use tasks which permit the subjects to utilize their defenses to the full extent that they require them; only the instructions should restrain them. Therefore, in allowing subjects to escape into the safety of clichés and other superficial forms of response, group conditions should have resulted in a more valid measure of defense.

Terry's scale contained five points: 1.0 description of people and objects, 2.0 plot, 3.0 simple feelings of characters, 4.0 complex feelings of characters, and 5.0 analysis or description of character and social interaction. As used in the present study, the scale ranged from 1.0 to 5.8. Terry provides a rather detailed description of the five levels in her report (Terry, 1952).

CHAPTER IV

RESULTS

Reliability

Dependent variables.—Tone of outcome was rated by two female assistants. Interrater reliability was quite satisfactory when computed on the basis of the mean ratings of either three Happy or seven Gloomy pictures ($r = .879$ for Happy pictures and $r = .860$ for Gloomy pictures; $df = 180$). The intrarater reliability of the mean ratings for one picture as averaged across the two raters was equally satisfactory ($r = .922$; $df = 78$).

The ratings of level of response were performed by two male and two female assistants, and a 4×4 intercorrelation matrix was computed to estimate interrater reliability for each rater. The correlations between two raters, as based on the mean ratings of three Happy pictures, ranged from .477 to .727 with a mean of .571 ($df = 180$). The comparable correlations for the mean ratings of seven Gloomy pictures ranged from .426 to .693 with a mean of .550 ($df = 180$). The intrarater reliability of the mean ratings of one picture (as averaged across the four raters) was .790 ($df = 78$).

Since the mean ratings used in the analyses reported below were averaged not only across four raters but also across three Happy or seven Gloomy pictures, the final ratings were probably more reliable than either the inter- or intrarater reliability coefficients would indicate.

Moderator variables.—A male assistant scored the Word Association Test. His intrascorer reliability for shift scores was nearly perfect ($r = .999$, $df = 28$). Internal consistency was moderately high ($\alpha_{11} = .705$, $df = 48$) as computed by the Spearman-Brown Prophecy Formula (Thorndike & Hagen, 1967).

An item analysis of the humor ratings indicated that one of the cartoons did not correlate adequately with the total ratings. It was further discovered that one of the humor booklets contained an incorrect caption for another cartoon. The ratings for both of these items were deleted from the analysis, so that the total ratings reported below are the mean of the ratings of 58 cartoons. Internal consistency of the total ratings was quite high ($\alpha_{11} = .977$, $df = 48$).

Since internal consistency of the make-believe preference scores was nil ($\alpha_{11} < .000$, $df = 48$), the measure was dropped from further analysis.

Demand Characteristics

The subjects' responses to the postexperimental questionnaire were analyzed to determine if any suspicions had been aroused concerning the purpose of the procedures used in manipulating humor exposure. No subject cited differential exposure to humor as a purpose of the cartoon rating task (Question 5), nor did any subject suspect that one purpose of the storytelling task was to measure the effects of exposure to humor (Question 6). Finally, no one saw that the general purpose of the experiment was to study the effects of humor exposure on subsequent behavior (Question 2). Subjects did recognize that one of the purposes was to determine if there is a relationship between the liking of humor

and creativity on the fantasy test. Another frequent suspicion was that the experiment was designed to see if "different kinds of people like different kinds of humor." These results are consistent with the experimenter's evaluation of subjects' reactions to the experiment as revealed during the debriefing.

Relationships Among the Personality Variables

Hypothesis I.—The predicted positive relationship between humor appreciation and adaptive regression was not confirmed by the data. A zero correlation was obtained between total humor ratings and shift scores on the Word Association Test for subjects in both the Humor and No Humor conditions ($r = .000$, $df = 154$, ns), providing no support for Hypothesis Ia. Hypothesis Ib could not be tested due to the inadequate internal consistency of the make-believe preference scores.

Hypothesis II.—A positive relationship between humor appreciation and emotional involvement had been predicted. The results were confirming, as level of response for Happy and Gloomy pictures combined correlated significantly with total humor ratings ($r = .190$, $df = 76$, $p < .05$). The correlation was also significant for Happy pictures alone ($r = .209$, $df = 76$, $p < .05$), but not for Gloomy pictures ($r = .144$, $df = 76$, ns). These correlations were computed with data from the No Humor condition.

Hypothesis III.—No support was found for the predicted positive relationship between adaptive regression and emotional involvement. The correlations between shift scores and mean level of response ratings were nonsignificant for both Happy ($r = .038$, $df = 76$, ns) and Gloomy

pictures ($r = .086$, $df = 76$, ns) and for the two pictures combined ($r = .066$, $df = 76$, ns). These data are from the No Humor condition.

Sex differences.—Although no predictions had been made concerning sex differences, the females' mean total humor ratings were significantly more positive than were the males' ($M = 6.829$ for females, versus $M = 6.356$ for males; $t = 2.704$, $df = 154$, $p < .01$ with a two-tailed test). The sexes did not differ significantly on shift scores.

Pictures.—In spite of the high reliability of the tone of outcome ratings, the mean ratings for Happy pictures did not correlate significantly with those for Gloomy pictures. On the other hand, the mean ratings of level of response for Happy and Gloomy pictures correlated rather substantially ($r = .748$, $df = 76$, $p < .005$). These correlations were computed with data from the No Humor condition.

To be able to test Proposition IV, it was necessary that a tercile division of subjects result in a Positive group having a mean total humor rating of 7.00 or greater, a Neutral group having a mean lying between 6.00 and 6.99, and a Negative group having a mean of 5.99 or less. This requirement was fulfilled for both males (Positive, $M = 7.515$; Neutral, $M = 6.390$; Negative, $M = 5.162$) and females (Positive, $M = 7.955$; Neutral, $M = 6.848$; Negative, $M = 5.685$).

Hypotheses IV and V were tested mainly by four-way, split-plot analyses of variance (Kirk, 1968) incorporating three between groups factors (treatment, moderator variable, and sex) and one within groups factor (pictures). Separate analyses were performed for tone of outcome and level of response as dependent variables and for humor appreciation and adaptive regression as moderator variables.

Optimism

By levels of humor appreciation.—Table 1 reports the results of the ANOVA based on mean ratings of tone of outcome as the dependent variable and humor appreciation as the moderator variable. (The cell means from the analysis are given in Appendix C.) The error variances were sufficiently homogeneous to warrant pooling ($F_{\text{max}} = 5.74$, $df = 12/12$, $p > .05$ for $MS_{\text{subjects within groups}}$; $F_{\text{max}} = 4.79$, $df = 12/12$, $p > .05$ for $MS_D \times \text{subjects within groups}$); see Kirk (1968) for a description of these procedures.

The overall treatment effect approached significance ($p < .10$), indicating that story outcomes tended to be more positive in tone when written after exposure to philosophical humor ($M = .206$) than when written under the control condition ($M = .055$). The impact of the humor was confined almost exclusively to females, however. The Treatment \times Sex interaction was significant, for example, and simple main effects tests for each sex showed that females receiving the Humor treatment were quite reliably more optimistic in their outcomes than were those receiving No Humor [$F(1,144) = 8.01$, $MS_{\text{error}} = .529$, $p < .005$ at a familywise alpha level], whereas the male groups showed a negligible difference [$F(1,144) < 1.0$, $MS_{\text{error}} = .529$, ns]. Figure 5 presents these data graphically; the effect of the Humor treatment was estimated from the differences between the mean tone of outcome in corresponding Humor and No Humor groups. The figure shows clearly that females evidenced a positive effect at each of the three levels of humor appreciation, whereas the effect among males was essentially nil at each level.

TABLE 1

Analysis of Variance of Tone of Outcome Ratings as a Function of
Treatment, Humor Appreciation, Sex, and Pictures

Source	df	MS	F
<i>Between subjects</i>			
Treatment (A)	1	1.797	3.40†
Humor Appreciation (B)	2	2.226	4.26**
Sex (C)	1	6.782	12.81****
A × B	2	0.146	—
A × C	1	2.466	4.66*
B × C	2	0.080	—
A × B × C	2	0.165	—
Error (subjects within groups)	144	0.529	
<i>Within subjects</i>			
Pictures (D)	1	92.801	265.63****
A × D	1	0.034	—
B × D	2	0.258	—
C × D	1	5.822	16.66****
A × B × D	2	0.062	—
A × C × D	1	0.176	—
B × C × D	2	0.321	—
A × B × C × D	2	0.094	—
Error (D × subjects within groups)	144	0.349	

† $p < .10$

* $p < .05$

** $p < .025$

*** $p < .01$

**** $p < .001$

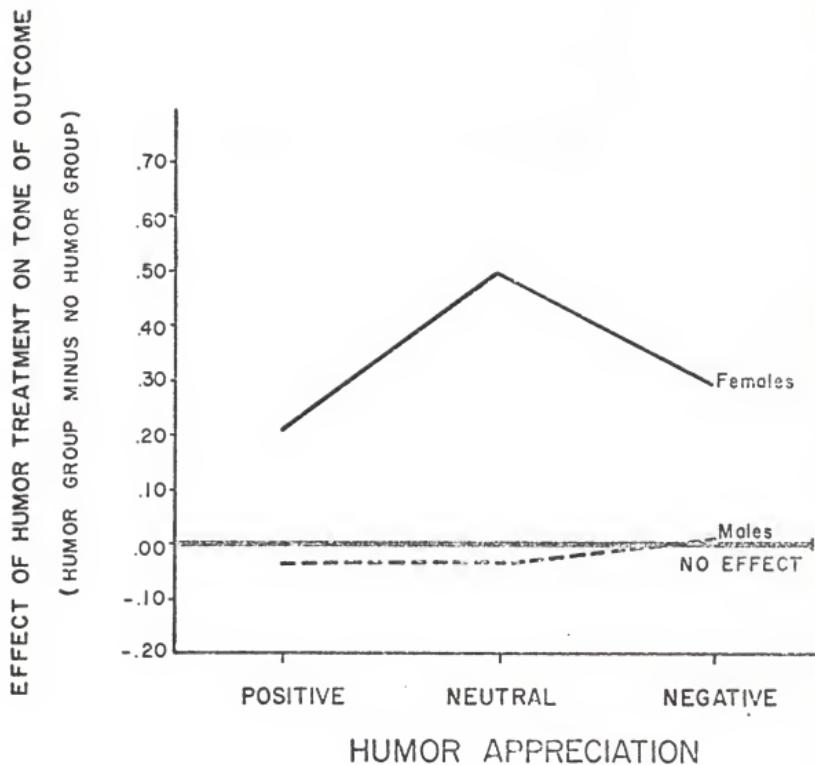


Fig. 5. The effect of humor treatment on tone of outcome as a function of humor appreciation ratings and sex.

A more detailed breakdown of the data is needed to evaluate the hypotheses concerning tone of outcome, as they were based on an expected interaction between treatment and humor appreciation. The Humor treatment was predicted to raise optimism in the Positive humor appreciation group (Hypothesis IVa), to have no effect on the Neutral group (Hypothesis IVb), and to lower optimism in the Negative group (Hypothesis IVc).

The data in no way confirmed the expected interaction. First, the Treatment \times Humor Appreciation interaction was nonsignificant. Second, the Treatment \times Humor Appreciation \times Sex interaction, which would indicate if the second-order interaction were significant for either sex alone, was nonsignificant. Third, a Newman-Keuls test found none of the Humor groups to have a mean tone of outcome significantly different from its corresponding No Humor group for either males or females. Hypothesis IVb, under these conditions, could not be considered confirmed even though it predicted no effect.

A main effect due to humor appreciation was found. Inspection of the overall means for each level of humor appreciation shows that subjects in the Neutral group expressed a more negative tone in their outcomes ($M = -.040$) than did subjects in the Positive ($M = .218$) and Negative ($M = .213$) groups.

A highly significant main effect due to sex was also found. Females gave more positive outcomes ($M = .278$) than males ($M = -.017$).

Happy pictures elicited significantly more positive outcomes ($M = .676$) than did Gloomy pictures ($M = -.415$).

A highly significant Sex \times Pictures interaction resulted from females giving more positive outcomes ($M = .960$) than males ($M = .392$)

in response to Happy pictures ($q = 4.88$, $df = 144$, $p < .01$) but giving outcomes of approximately the same tone ($M = -.404$) as those given by males ($M = -.426$) in response to Gloomy pictures.

By levels of adaptive regression.—Acceptable homogeneity of variance was not obtained for the between groups error term ($F_{\max} = 8.94$, $df = 12/12$, $p < .05$) when the mean ratings of tone of outcome were partitioned by levels of adaptive regression. A \log_{10} transformation successfully reduced this heterogeneity to a more acceptable level ($F_{\max} = 7.07$, $df = 12/12$, $p > .05$) and provided quite satisfactory homogeneity for the repeated measures term ($F_{\max} = 2.64$, $df = 12/12$, $p > .05$). As a result, the appropriate four-way ANOVA was performed with the transformed data. (The cell means for the raw data are given in Appendix D.) Only the results involving the adaptive regression term will be discussed, as the other F ratios were formed from the same data that was reported in the previous analysis (see Table 1).

The main effect due to adaptive regression was nonsignificant [$F_{(2,144)} < 1.0$, $MS_{\text{error}} = .01148$, ns], but two interactions involving this factor were significant.

First, a Treatment \times Adaptive Regression interaction [$F_{(2,144)} = 3.32$, $MS_{\text{error}} = .01148$, $p < .05$] partially confirms Hypothesis V. The treatment effect, as shown in Figure 6, tended to be greater at the High level of adaptive regression than at the Low ($t = 1.82$, $df = 144$, $p < .10$ with a two-tailed test), indicating a positive relationship between treatment effect and adaptive regression.

Second, a Treatment \times Adaptive Regression \times Pictures interaction was significant [$F_{(2,144)} = 4.09$, $MS_{\text{error}} = .00695$, $p < .025$]. It would

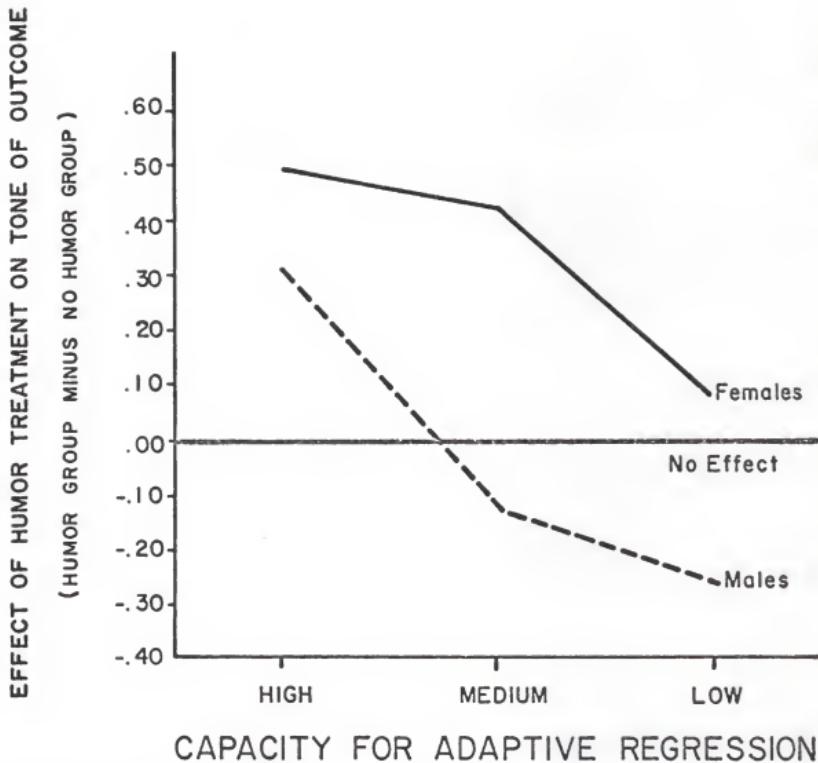


Fig 6. The effect of humor treatment on tone of outcome as a function of adaptive regression scores and sex.

appear from inspection that the effect due to humor exposure was slightly more positive with Happy than Gloomy pictures at the High and Low levels of adaptive regression, while this tendency was strikingly reversed at the Medium level. The validity of this interpretation cannot be asserted confidently, however, as a Scheffé comparison designed to test it was far from being statistically significant [$F(2,144) = 5.76$, where the critical value at $\alpha = .05$ is $F'(2,144) = 33.00$, $MS_{\text{pooled}} = .00922$, ns].

Emotional Involvement

As with those on optimism, the data on level of response were first analyzed by levels of humor appreciation and then by levels of adaptive regression.

By levels of humor appreciation.—The results of a four-way ANOVA designed to evaluate the data on level of response by levels of humor appreciation are presented in Table 2. (See Appendix E for the cell means.) Satisfactory homogeneity of variance was obtained for both error terms ($F_{\text{max}} = 5.78$ for $MS_{\text{subjects within groups}}$, $df = 12/12$, $p > .05$; $F_{\text{max}} = 4.44$ for $MS_D \times \text{subjects within groups}$, $df = 12/12$, $p > .05$).

The main effect due to humor exposure approached significance ($p < .10$), with subjects in the Humor condition tending to produce a lower level of response ($M = 3.462$) than those in the No Humor condition ($M = 3.529$). As can be seen in Figure 7, the only departure from the general pattern is found in the male Negative humor appreciation group, where the treatment effect was slightly but nonsignificantly positive.

TABLE 2

 Analysis of Variance of Level of Response as a Function of Treatment,
 Humor Appreciation, Sex, and Pictures

<hr/>			
<hr/>			
Between subjects			
Treatment (A)	1	0.3527	3.66
Humor Appreciation (B)	2	0.2834	2.94†
Sex (C)	1	2.1517	22.34****
A × B	2	0.0148	—
A × C	1	0.0822	—
B × C	2	0.4234	4.40**
A × B × C	2	0.0567	—
Error (subjects within groups)	144	0.0963	
Within subjects			
Pictures (D)	1	0.0035	—
A × D	1	0.0015	—
B × D	2	0.0464	3.01*
C × D	1	0.0228	1.48
A × B × D	2	0.0049	—
A × C × D	1	0.0046	—
B × C × D	2	0.0001	—
A × B × C × D	2	0.0125	—
Error (D × subjects within groups)	144	0.0154	

[†] $p < .10$
^{*} $p < .05$
^{**} $p < .025$
^{***} $p < .01$
^{****} $p < .001$

TABLE 2

σ^2 Variance of Level of Response as a Function of Treatment,
Humor Appreciation, Sex, and Pictures

EFFECT OF HUMOR TREATMENT ON LEVEL OF RESPONSE

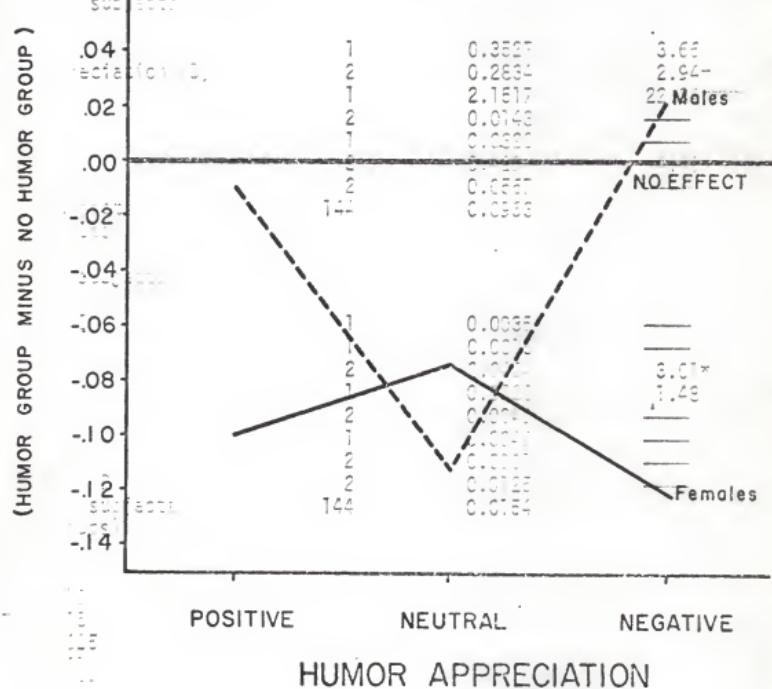


Fig. 7. The effect of humor treatment on level of response as a function of humor appreciation ratings and sex.

Although the Treatment \times Sex interaction was nil, a simple main effects test showed that females tended to lower their level of response as a result of the Humor treatment [$F(1,144) = 4.03$, $MS_{\text{error}} = .096$, $p < .10$ at a familywise alpha level], whereas the males remained essentially unaffected by the treatment [$F(1,144) < 1.0$, $MS_{\text{error}} = .096$, ns]. The mean level of response for females was 3.529 in the Humor condition as opposed to 3.629 in the No Humor condition; for males the mean was 3.396 in the Humor condition as opposed to 3.430 in the No Humor condition.

The Humor treatment was predicted to raise level of response in the Positive humor appreciation group (Hypothesis IVa), to have no effect on the Neutral group (Hypothesis IVb), and to lower level of response in the Negative group (Hypothesis IVc). These hypotheses were disconfirmed by the absence of a significant Treatment \times Humor Appreciation interaction and by the absence of a treatment effect at any of the three levels of humor appreciation when analyzed separately by a Newman-Keuls test. Again, under these conditions Hypothesis IVb could not be accepted.

The main effect due to humor appreciation approached significance ($p < .10$) and indicated a positive relationship between humor appreciation and emotional involvement. This finding has already been shown under Hypothesis II.

A Humor Appreciation \times Pictures interaction was significant. As can be seen in Figure 8, subjects in the Positive humor appreciation group tended to give a higher level of response to Happy than Gloomy pictures.

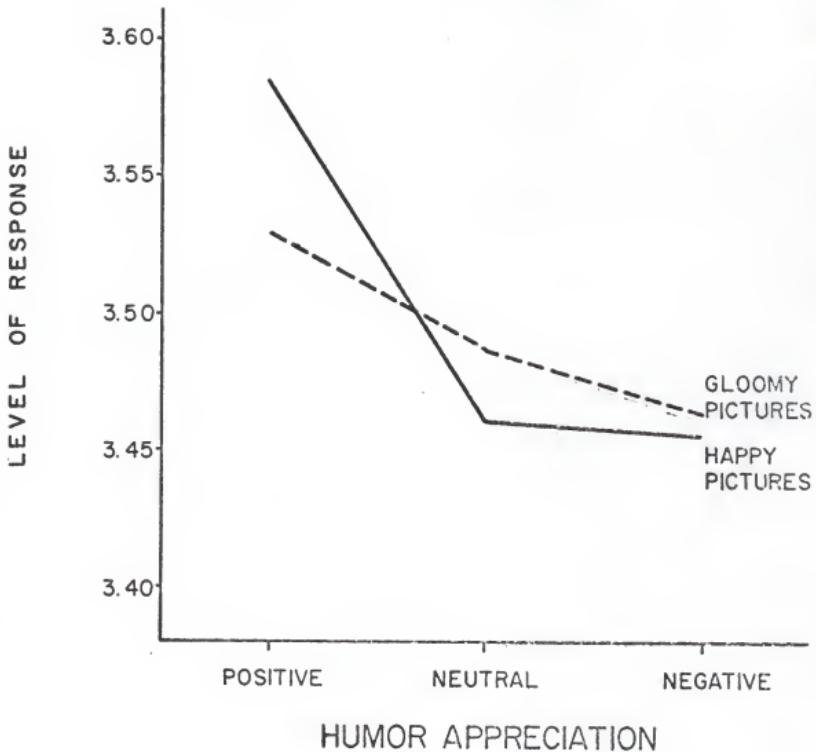


Fig. 8. Level of response as a function of humor appreciation ratings and affective quality of pictures.

A significant Humor Appreciation \times Sex interaction appears to have derived from the tendency of females in the Neutral group to give a *higher* level of response ($M = 3.629$) than did those in the Positive ($M = 3.610$) and Negative ($M = 3.498$) groups, whereas males in the Neutral group tended to give a *lower* level of response ($M = 3.317$) than did those in the Positive ($M = 3.501$) and Negative ($M = 3.420$) groups. In other words, level of response tended to increase in the Neutral female group but tended to decrease in the Neutral male group. The reliability of the above interpretation cannot be confirmed, however, as a Newman-Keuls test involving all of the sex means in question showed only that the female Positive and Neutral groups differed significantly from the male Neutral group ($p < .05$). Since none of the within-sex means differed significantly, and since it has already been ascertained that females in general responded at a higher level than males, the significant difference between the male and female Neutral groups is inconclusive with regard to our interpretation.

A highly significant main effect due to sex was found, with females giving a higher level of response ($M = 3.579$) than males ($M = 3.413$).

By levels of adaptive regression.—The mean ratings of level of response were partitioned on the basis of adaptive regression shift scores, and a four-way ANOVA was again performed. (See Appendix F for the cell means.) Homogeneity of variance was obtained without a transformation ($F_{\max} = 4.74$ for $MS_{\text{subjects within groups}}$, $df = 12/12$, $p < .05$; $F_{\max} = 7.00$ for $MS_D \times \text{subjects within groups}$, $df = 12/12$, $p < .05$). None of the terms containing the adaptive regression factor were significant. Hypothesis V therefore received no further support.

Comparison of the Two Control Conditions

The supplementary control group was compared with a subsample equal in size from the regular control group. The groups were matched on sex and humor appreciation.

A set of *t*-tests were performed to detect differences in the mean ratings of tone of outcome and level of response between the two groups. Error terms from the four-way ANOVAs reported above, containing $df=144$, were used in these tests in an effort to make them as reliable as possible. The formula used is one given by Kirk (1968, P. 74). Positive values indicate a higher mean for the supplementary control group. None of the tests even approached significance [tone of outcome (Happy), $t = -.347, ns$; tone of outcome (Gloomy), $t = -.377, ns$; level of response (Happy), $t = .058, ns$; level of response (Gloomy), $t = -.267, ns$].

The means used in these tests are reported in Table 3. Corresponding means for the two groups were remarkably similar, indicating that some of the small yet statistically significant effects due to the humor treatment may represent more important findings than their magnitude alone would suggest.

TABLE 3

Mean Ratings of Tone of Outcome and Level of Response on Happy and Gloomy Pictures for the Supplementary Control Group and a Matched Subsample from the Regular Control Group
 (n = 26)

<u>Variable</u>	<u>Supplementary Control</u>	<u>Regular Control</u>
Tone of Outcome		
Happy pictures	0.682	0.752
Gloomy pictures	-0.450	-0.374
Level of Response		
Happy pictures	3.515	3.510
Gloomy pictures	3.470	3.494

CHAPTER V

DISCUSSION AND CONCLUSIONS

The Hypotheses

The experiment offered highly mixed support for the five hypotheses tested. On the one hand, at least partial support was found for two of the hypotheses. Humor appreciation was positively related to emotional involvement, as predicted by Hypothesis II. Hypothesis V was partly supported in that the effects of humor exposure on optimism were positively related to levels of adaptive regression.

On the other hand, four of the hypotheses were left at least partially unconfirmed by the data. Appreciation of philosophical humor was unrelated to capacity for adaptive regression since humor ratings did not correlate with shift scores (Hypothesis Ia), and the unreliability of the make-believe preference scores precluded a meaningful test of Hypothesis Ib. Shift scores did not correlate with level of response on either Happy or Gloomy pictures, leaving entirely unsupported the positive relationship between adaptive regression and emotional involvement predicted by Hypothesis III.

Hypothesis IV also failed to receive support. Humor exposure did not reliably affect optimism (tone of outcome) or emotional involvement (level of response) at the Positive and Negative levels of humor appreciation when the data were analyzed separately by level, and there was no Treatment \times Humor Appreciation interaction. Since humor

appreciation did not moderate the treatment effect at these levels, its failure to do so at the Neutral level could not be taken as sufficient evidence to accept Hypothesis IVb (a null hypothesis).

Finally, Hypothesis V was partially unsupported in that adaptive regression did not moderate the effect of humor exposure on emotional involvement.

But the experiment was much more successful in supporting the theory in general than it was in proving the specific hypotheses set forth. This state of affairs results in part from the unnecessary emphasis which the hypotheses placed on the importance of humor appreciation as a moderator variable. Hypothesis IV, the major prediction concerning the experimental manipulation, was entirely dependent on this variable. (Possible defects in the humor ratings are discussed below under Methodology.) Another fault in the hypotheses derived from a perhaps erroneous assumption concerning the nature of the task in which the dependent variables were measured. Because of these difficulties, the results of the experiment can be best evaluated within the framework of the theory as a whole.

Support for the Theory

Six findings are of particular relevance to the theory. First, females expressed a significantly more positive tone in their story outcomes after humor than after exposure to the control stimuli. Assuming that story outcomes reflect optimism and that a greater projection of optimism reflects an enhanced sense of mastery, these findings support the general contention expressed in Proposition VI that exposure to philosophical humor normally reduces threat and enhances the ego's

estimate of its resources. These data also lend greater credence to Koppel's (1969) conclusion, based on subjects' self-reported affect, that humor reduces anxiety.

Second, the effects of philosophical humor on optimism varied positively with levels of adaptive regression for both sexes combined, partially confirming Hypothesis V. This finding is rather important, as it justifies to a certain extent the emphasis which the theory places on adaptive regression as a key moderator variable in the processing of philosophical humor. It also sheds light on the validity of the humor ratings. The effects produced by exposure to philosophical humor can be thought of as an alternative to the humor ratings as index of humor appreciation. The fact that these effects varied as a function of capacity for adaptive regression therefore suggests that the lack of correlation between total humor ratings and shift scores is more likely to be a result of defects in the humor ratings than of a true absence of relationship between humor appreciation and adaptive regression.

Third, subjects who were Positive in humor appreciation tended to involve themselves more in the Happy than the Gloomy pictures, whereas Neutral and Negative subjects showed the reverse tendency. This finding indicates that appreciation of philosophical humor is related to the ability for emotional acceptance of harm-neutralizing cognitions.

Fourth, humor appreciation was positively related to emotional involvement, supporting the belief that appreciation of philosophical humor requires a capacity for easy access to primary process material.

These two findings are intriguing when considered together. Those who enjoy philosophical humor prefer to ruminate on the joys of life than on the sorrows, but they can do both. Since the predictions in

Hypothesis IV concerning individual differences in responsiveness to humor failed to receive support elsewhere, this finding is particularly encouraging.

Fifth, various sex differences found in the experiment tend to explain why males did not show an increase in optimism following exposure to the humor. For one, males were much less optimistic than females in the stories they gave to Happy pictures but did not differ from females on Gloomy pictures. Although the Happy pictures showed scenes of at least modest pleasure or blessing (a marriage, a mother breast-feeding her child, and an elderly couple swinging contentedly in a park), they also contained melancholy prospects that could easily be found by a person who was inclined to search for them. In other words, in the terminology of our theory, the Happy pictures contained both harm symbols and elements of reinterpretation. The lack of optimism shown by the males on these pictures thus indicates that males were less able than females to accept reassuring, harm-neutralizing cognitions and more prone to ruminate on unhappy possibilities.

Consequently, it seems plausible that the failure of males to sustain an improvement in outlook from the philosophical humor also resulted from their resistance to positive reinterpretation. Consistent with this explanation is the finding that males rated the philosophical humor more negatively than did the females, again indicating (to the extent the ratings were valid) that males had difficulty deriving comfort from its reinterpretation. Earlier research confirms that males enjoy humor less than females (Felker & Hunter, 1970).

Sixth, exposure to philosophical humor tended to lower emotional involvement. This result is only marginally significant even for

females, who showed the greater effect ($p < .10$). But it will be discussed at length because from hindsight it appears more plausible than the original prediction and because it suggests a set of important refinements in the theory.

The theory predicts that philosophical humor will engender an enhanced sense of mastery and capacity for adaptive regression in persons who express a positive attitude toward it. Since the female subjects tended to show an increase in optimism following humor exposure at all three levels of humor appreciation, most of those who gave Neutral or Negative overall ratings may actually have had a positive attitude toward it. Their ratings could have been merely an indication of their negative preference for *New Yorker* cartoons in comparison to other forms of philosophical humor. The theory also predicts that the improvements in mood induced by philosophical humor will manifest themselves in an increased tendency for the person to "assert himself in those ways that will be productive" (from Proposition VI, P.41 above). On the basis of these considerations, one would have expected an increase in level of response among the female subjects according to the theory, since high emotional involvement in the storytelling task was assumed to reflect a productive orientation.

The obtained decrease in level of response is also inconsistent with the findings reported by Porr (1961). It will be recalled that exposure to sexual and neutral humor enhanced the tendency of Porr's subjects to express anxious, conflictual, aggressive, and sexual themes, suggesting that humor increases the accessibility of primary process material.

The following argument attempts to offer a reasonable explanation for these inconsistencies.

Philosophical humor enhances mood, as was demonstrated with the data on optimism, and its discovery and make-believe qualities may enhance adaptive regression on tasks in which the content is primarily cognitive. But philosophical humor could at the same time work somewhat in the opposite direction on emotionally involving tasks by enhancing a person's tendency to withdraw from harm symbols. Modeling a denial orientation in which the potency of dangers is distorted and belittled, the humor might lead a person to be less inclined to identify positively with people in unfortunate circumstances as a way of protecting his newly-acquired sense of invulnerability. It is perfectly consistent with intuition to expect someone in a "good mood" to be *less* prone than he normally would to "concern himself in someone else's troubles" when there is no overriding motive to do so.

If this argument is valid, it becomes imperative to know to what extent the storytelling task posed a compelling challenge. Did the subjects in fact feel a strong need to cope effectively with the harm symbols, to assert themselves through emotional involvement? Upon reflection, it would seem that the design of the experiment was faulty in having overestimated the power of the task to fulfill this requirement. Rather than provoke self-assertion, it more likely elicited the alternative response specified by the theory, which is for a person "to accept his fate insofar as he must" (from Proposition VI). Since nothing of great consequence depended on the quality of his product, a subject probably considered the scenes of loneliness, war, bereavement, poverty, and so on as stimuli that he would do well to accept passively rather

than struggle against aggressively. The instructions attempted to produce a compelling challenge by describing the task as one measuring creative imagination, but even so a subject in the humor condition probably felt no need to jeopardize his enhanced mood simply for the sake of appearing a little more creative in someone's psychological experiment.

The above interpretation brings to light two possible flaws in the theory. First, Proposition I simply predicted that philosophical humor would increase adaptive regression. It did not distinguish between the enhancement of cognitive flexibility and the enhancement of contact with primary process material, yet such a distinction would appear plausible (see the discussion below under Methodology). Philosophical humor could conceivably increase the fluidity of cognitive processes but decrease conscious contact with drive impulses. This possibility would not be inconsistent with the initial role that affective regression is postulated to play during the processing phase.

Second, Proposition VI failed to specify with any precision the conditions under which one would expect greater self-assertion and when one would expect greater passivity. Goodrich *et al.* (1954) have suggested that humor even tends to make physicians withdraw from their patients' problems, a responsibility that is certainly more compelling than the situation presented in the storytelling task. Clearer conceptualization and more empirical research are needed to refine this aspect of the theory.

In short, the data suggest that the improved mood induced by philosophical humor tends to prevail over whatever increase there may be in affective regression. The audience appears to protect its sense

of invulnerability by increasing its avoidance of harm symbols. The experiment provided no data concerning the effect of humor on cognitive flexibility.

But if the suggested modifications of the theory are valid, why then did Porr's data appear to support the original expectation? One explanation is that the TAT cards used in Porr's study posed an entirely different projective task than the one created by the pictures in the present study. Murray's TAT cards are thought in general to convey highly ambiguous symbols that may or may not depict harm (Murstein, 1963), and four of the five cards Porr selected would seem especially ambiguous (5, 6GF, 12BG, and 14). Since exposure to philosophical humor can arouse at least mild threat (Proposition III), the humor may have led Porr's subjects to enhance their involvement in the story-telling task as a way of externalizing, and thereby alleviating, their latent threat. The accompanying sense of invulnerability they had acquired from the humor would not be endangered by this involvement because the ambiguity of the cards would protect them from direct confrontation with harm symbols. On the other hand, in the present study the latent threat produced by the humor could not be relieved through externalization because the clarity of the themes depicted in the pictures gave little freedom to restructure the stimuli conceptually. Moreover, the clarity of the harm symbols served to enhance denial and avoidance tendencies.

Another explanation for Porr's data is simply that expression of anxiety and conflict is orthogonal or negatively related to level of response. Further analyses of the stories are planned, which will provide an opportunity to explore in greater depth the tenability of this

explanation. In addition, of course, it is also possible that one or both sets of data are unreliable. Again, only further research can decide on the merits of this hypothesis.

In summary, the results of the experiment support the theory in four respects, tend to explain the failure of philosophical humor to affect males, and point to two revisions which are required in the theory.

Additional Findings

Given the problems associated with the humor ratings, it would seem impossible at the present time to interpret the finding that optimism was lower at the Neutral level of humor appreciation than at the Positive and Negative levels. That females showed relatively high emotional involvement at the Neutral level of humor appreciation while the males showed relatively low involvement at the same level is even more enigmatic. Finally, no reasonable explanation can be offered for the finding that humor enhanced optimism with Gloomy pictures but decreased it with Happy pictures at the Medium level of adaptive regression, whereas this effect tended to be reversed at the High and Low levels.

Methodology

Manipulations.—Three findings confirm the validity of various manipulations undertaken in the experiment. The independent variable appears to have been free of contamination from confounding demand characteristics, since no subjects expressed any suspicion whatsoever that a major purpose of the humor rating task was to manipulate humor exposure. Also, the high degree of similarity between the results from

the regular control condition and those from the supplementary control condition demonstrated with some certainty that the filler task produced an essentially neutral experience. Finally, the substantially greater optimism given in response to Happy than Gloomy pictures demonstrated the validity of our classification of pictures in the storytelling task.

Validity of the humor ratings.—The difficulties in relying on a rating scale to measure humor appreciation were thoroughly considered during the design of the experiment. In fact, the data collected in the present experiment only confirm the high reliabilities reported in earlier studies. Furthermore, social desirability was probably not a serious problem if the small correlation between humor ratings and social desirability reported by Young and Frye (1966) is reasonably accurate.

But the extent to which respondents fail to anchor their ratings on the descriptions which define the end points of a humor rating scale perhaps posed a more important problem. Two biases could result from such a tendency. A respondent's ratings may be more a function of his general inclination to respond positively or negatively on *any* scale than of the quality of his underlying affective response to the particular humor he is rating. This bias is to be distinguished from a need to be socially desirable, as the question is not how much the subject is attempting to please someone else but rather his general orientation toward the rating scale itself.

The second and more serious bias is the extent to which most respondents may think they are expected to use the entire range of a rating

scale. They may divide their responses more or less equally between the positive and negative half of the scale simply to utilize its full range. This is a particularly troublesome bias when there is a need, as in the present experiment, not only to determine where a person lies in relation to his fellow respondents along an underlying dimension but also to locate him at a specific point on that dimension. It was necessary in our experiment to know if a subject reacted to the stimulus with essentially positive, neutral, or negative affect. Therefore, even if the estimates of validity reported in the introduction give an accurate indication of the relationship between subjects' ratings and their ranking along the conceptual variable of humor appreciation, their failure to properly anchor their responses would still make it impossible to know whether those classified as Negative did in fact experience generally negative affect in response to the cartoons. If their emotional response was simply less positive than the other subjects but not negative, then there would of course be no reason to expect them to have been affected by the humor in a manner radically different from their counterparts classified Positive or Neutral.

It is true that the humor ratings correlated positively with emotional involvement. And it is also true that differences in emotional involvement varied as a function of the humor ratings and that the pattern of this variation, by conforming to the theory, tended to support the validity of the rating scale. But neither of these findings required anything more than a minimum of validity on the part of the humor ratings. The statistical significance of the Humor Appreciation \times Pictures interaction resulted more from the power of the split-plot ANOVA used to test it than from the magnitude of the effect itself, and the correlation

between humor ratings and level of response accounted for less than four percent of the existing variance.

In other words, there are good reasons to question the validity of the scale values obtained from self-report ratings, but there is also some evidence that these values were at least partially valid in the present experiment. In light of the imponderables created by these opposing considerations and of the existing evidence pointing to humor as a disturbing stimulus for psychiatric patients (Levine & Abelson, 1959), it would seem premature to reject Hypothesis IV solely on the basis of our unsupportive findings.

Reliability of level of response ratings.—Certain problems arose in rating level of response. One difficulty lay in the scale itself, as the raters concluded that the scale values and definitions were inadequate to capture the multidimensionality of the stories. In the end they were forced to weigh the importance of various ill-defined dimensions at an intuitive level in order to gain a global impression, which made it difficult for them to agree on a particular story.

But another problem was of perhaps greater importance in reducing reliability. From hindsight it appears that the format of the pages on which subjects wrote their stories was over-structured. By containing four specific headings (Background, Action, State of Mind, and Outcome), these pages made it difficult for subjects to avoid giving at least a minimum of elaboration. Particularly striking was the almost complete absence of stories falling below a rating of 3.0, a level which requires some statement about the feelings of the characters in the picture. It is believed that the presence of the "State of Mind" heading on each response page produced this paucity of low ratings, which in turn contributed substantially to the low interrater reliabilities.

Because of these problems, it was fortunate that four assistants were available to perform the ratings of level of response. The reliability of the mean ratings for the four raters combined was of satisfactory reliability, as indicated by the reasonably high intrascorer reliability for the group of raters as a whole and the substantial correlation between level of response on Happy and Gloomy pictures.

But it should also be noted that the low interrater reliability of these ratings produced regression effects which further restricted the range of the mean ratings obtained for individual subjects. As a consequence, the data probably underestimated the magnitude of the treatment effects on level of response, which suggests that the potential range of the entire scale should not be used to judge the theoretical importance of these effects.

Adaptive regression.—The absence of relationship between shift scores on the Word Association Test and level of response on the story-telling task may indicate that Wild's (1965) measure of adaptive regression reflects cognitive flexibility rather than a capacity for ready contact with primary process material. This conclusion is supported by preliminary analyses of supplementary data collected in the experiment, which showed that shift scores correlated positively with the total scores on three measures of intellectual aptitude (The Cooperative School and Ability Tests, $r = .299$, $df = 129$, $p < .005$; the Florida Twelfth Grade Placement Examination, $r = .218$, $df = 143$, $p < .005$; and the Scholastic Aptitude Test, $r = .208$, $df = 74$, $p < .05$).

Furthermore, shifting from the role of a regulated to that of an unregulated person would not intuitively appear to require access to

emotional content, at least insofar as altering one's production of original responses is concerned. The test could perhaps be improved by assessing the drive content (Pine, 1960) as well as the originality of the responses given under the two conditions.

Implications of the Theory and Findings

Philosophical humor has been found to improve optimism and facilitate indifference to melancholy symbols, responses which are surely therapeutic under certain circumstances. That a person's susceptibility to this influence is at least partly determined by adaptive regression as defined by Wild's measure points to the possibility that cognitive flexibility might be related to a patient's openness to therapy. Moreover, appreciation of philosophical humor was found to be associated with a hallmark of healthy psychological functioning—a capacity for emotional involvement combined with a tendency for greater involvement in happy than sad themes. Finally, in identifying the roles played by such diverse qualities as condensation, playfulness, make-believe, discovery, harm symbols, reinterpretation, and drive content, the theory suggests ways in which the richness of philosophical humor could be turned to profit in diagnosis and therapy.

Thus, both the empirical data collected in the experiment and our theoretical analysis have implications for psychotherapy. Rose (1969) has given a thoughtful psychoanalytic interpretation to the therapeutic function of philosophical humor. He cites three of its benefits. First, he asserts that "it may be used to mobilize benign aspects of the super-ego, attack archaic elements of the superego, and support the ego" (p. 932).

The more loving and gentle portions of the conscience can be strengthened by a humorous item which relieves the audience of an archaic sense of guilt, as in Handelsman's cartoon (Figure 3 above) that says to the audience, "Ah, there's no reason for you to hold yourself responsible for all the world's problems!" The ego, on the other hand, can be strengthened by the success it experiences in mastering incongruity and by incorporating the self-assertion that is modeled by such characters as Mr. and Mrs. Glenhorn (see Figure 4).

Second, philosophical humor "may foster an ambiance which helps lift repression" (P. 933). The regression induced during humor appreciation creates a state of fluidity in which new mediational links enable normally isolated cognitions to be experienced together at the conscious level. The analyst, by expressing spontaneous humor during therapy, can model a willingness "to suspend common sense and risk temporary absurdity in order to encourage the freer play of imagination. . ." (P. 935). Also, the harm symbols in philosophical humor force the person to recognize the existence of harming stimuli. Reinterpretation admittedly negates the dangers portrayed in the harm symbols, but negation can at least be "a way of taking cognizance of what is expressed" (Freud, as cited in Rose, 1969, P. 934). Negation is useful as a modest first step in helping a patient attain insight into his motives and preoccupations.

Third, philosophical humor "may transmit reality across ego boundaries in the right blend of distance and closeness" in order "to temper the disruptive effects of insight on infantile narcissism" (Pp. 936, 937). Since facing the truth about one's vulnerability often causes deep anxiety, humor can soften the confrontation by gratifying the id

with drive content and by partially concealing the harm symbols among such distracting qualities as discovery, make-believe, and playfulness. Rose wisely cautions, however, that philosophical humor should not be used by either patient or therapist as a means of escaing from certain of the unenjoyable but necessary tasks which are involved in successful therapy.

Rose's analysis may offer little inspiration to psychotherapists with a behaviorist orientation. But the principles of behavior modification, especially as enunciated by Bandura (1969), can readily be used to design effective therapeutic techniques employing philosophical humor. Discovery, playfulness, make-believe, and drive content are stimulus qualities capable of eliciting positively toned competing responses in a counterconditioning procedure, while harm symbols can produce the negatively toned responses which are to be neutralized. Reinterpretation can enhance the strength and generalizability of the competing response by providing cognitive mediation. Careful selection of the harm symbols would permit development of materials specially designed for treatment of particular kinds of phobic or anxiety reactions. Also, the theory suggests that nonsense humor (containing no harm symbols) could be used to supplement the existing repertoire of relaxation-inducing procedures.

In addition, philosophical humor holds considerable promise as a diagnostic technique. The Mirth Response Test developed by Redlich, Levine, and Sohler (1951) permits both the identification of areas of emotional disturbance and the assessment of the degree to which such disturbances interfere with intellectual processes. Using a similar test, Ullman and Lim (1962) found that facilitators tend to enjoy

philosophical humor more than inhibitors. Nussbaum and Michaux (1963) were successful in using spoken jokes to assess mood changes in depressive patients. Finally, Strother, Barnett, and Apostolakos (1954) found substantial correlations between the ratings given to different clusters of cartoons and subscales on such existing clinical instruments as the Minnesota Multiphasic Inventory.

Hopefully, the theory could lead to a refinement and extension of these procedures. By specifying the most important components in philosophical humor and by showing how each is thought to contribute to the various responses involved in humor appreciation, the theory suggests means of utilizing the complexity of patients' responses to humor as a rich source of information concerning the specific mechanisms they use to cope with challenges in particular areas of disturbance. Is a patient unable to regress in general, or does he simply block with certain harm symbols? Does he exhibit a coherent pattern in his failure to control regression, perhaps by showing impulsive laughter at sexual items that sanction dependency but torment and anger at items that belittle authority figures? Is he indifferent to an item because he fails intellectually to grasp its guilt-reducing reinterpretation?

Concluding Comments

The purposes of the study were to define and analyze the important stimulus qualities in philosophical humor, to provide a theory explaining how these qualities affect an audience, and to offer empirical support for the general propositions in the theory. Its success in achieving these goals should be evaluated.

The analysis of the stimulus qualities was reasonably plausible and should facilitate efforts to select humor items on the basis of content. But the schema of seven qualities which has been set forth here is more like a factor analysis than an identification of completely independent stimuli. An item of philosophical humor contains a host of relatively simple stimuli which, when processed psychologically, combine with one another in numerous ways to form distinct response aggregates. A smiling face in a cartoon may combine with two conversing dogs to elicit regression and may combine with a comforting caption to elicit reappraisal. Because of the overlapping roles played by most of the simple stimuli in humor, the "stimulus qualities" we obtained are abstractions defined more by their function than by their physical distinctiveness. As a result, it is frequently impossible to distinguish certain of the stimulus qualities from one another in any particular item. The problem is in part due to the very complexity of humor and hence is unavoidable, yet other observers will hopefully be inspired to refine the analysis in ways that would reduce the unnecessary confusion that may presently exist.

The theory was specifically formulated to explain philosophical humor, but it offers a general framework within which other forms of humor could also be analyzed. Adaptive regression plays a central role in the appreciation of all humor, and condensation, discovery, playfulness, and make-believe are probably just as instrumental in producing regression in a nonsensical pun as in a philosophical cartoon. Furthermore, the propositions concerning sensitization, threat, drive integration, and reinterpretation could be readily modified to account for the effects from such additional forms of emotionally charged humor as hostile wit and gallows humor.

The experiment was generally successful in supporting several major tenets of the theory. The humor treatment improved optimism among female subjects, confirming that philosophical humor enhances the ego's sense of invulnerability. The importance of adaptive regression as a moderator variable was demonstrated by the positive relationship between shift scores on the Word Association Test and the effect of the humor treatment on optimism. The enjoyment of philosophical humor was positively related to the capacity for involvement in emotionally toned stimuli, confirming the belief that the ability to make contact with primary process material plays a role in humor appreciation. Finally, the liking for philosophical humor was positively related to the preference for involvement in happy as opposed to melancholy stimuli, confirming the notion that the appreciation of philosophical humor is associated with the ability to derive solace from brief fantasies of joy and mastery.

However, the tendency for philosophical humor to decrease emotional involvement brings to light two weaknesses in the theory. Proposition I does not distinguish between cognitive and affective regression. The two processes could be affected differently by philosophical humor even though both worked together during the initial processing phase. The second weakness is in Proposition VI, which does not clearly specify the conditions in which greater self-assertion as opposed to passivity will be elicited by philosophical humor. Contrary to the assumption underlying Hypothesis IV, greater avoidance of harm symbols following exposure to philosophical humor may be the typical response under many circumstances. The female subjects, who acquired an improved ego state from humor exposure, seem to have defended their positive mood

through denial and avoidance of harm symbols rather than to have yielded to whatever accompanying enhancement in emotionality that they may have experienced.

Although philosophical humor has long been used informally in psychotherapy, the theory points to ways in which it could now be employed more systematically in such divergent approaches as psychoanalysis and behavior modification. The delicate balance between its threat-arousing and threat-reducing stimulus qualities suggests conditioning procedures for treating phobic and anxiety reactions, and both the theory and data indicate that its bolstering of the ego could be used to treat depression. Finally, its postulated richness in affective and cognitive content suggests its potential value as a diagnostic tool.

APPENDIX A

Description of the Photographs Used in the Fantasy Test

1. Two pre-adolescent boys confront one another in front of store. The boy on the left has grabbed the other's jacket and is staring at him maliciously, his clenched right fist ready to strike. The assaulted boy is attempting to mollify his tormentor with averted eyes and a pleading, apologetic expression on his face. (The original photograph is from Steichen, 1955, P. 46.)
2. The figure of what appears to be a young woman is huddled on a wooden bench in a dimly lighted room. Her face is buried in her lap, so it is impossible to tell whether she is crying or is just reposing (P. 144).
- *3. A European wedding march is moving down a country path lined with trees and a picket fence. The procession is led by the bride and groom and the best man. The bride is walking pensively, but the two men are joking. The mood of the remaining participants is equally varied, as some are solemn while others are cheerful (P. 15).
4. A grieving or frightened man is receiving comfort from a fellow soldier on the slope of a rocky mound. His head is buried against his friend's chest, and he is limp. A third soldier is sitting behind them to the left intently reading what appears to be a letter (P. 149).
5. A young oriental woman is crying as she caresses a newly constructed coffin. An older woman (or man), standing behind her, reaches down and touches her right arm (P. 140).
- *6. A young woman is smiling as she nurses a baby in her arms. She is wearing a wedding band, a white dress and an old-fashioned bonnet. The upper portion of her chest is nude (P. 24).
7. A man with Negro features, hunched shoulders, and soiled clothes is climbing the stairs in an old building. His gritted teeth suggest anger or frustration (P. 73).
8. An impoverished woman is gazing to her right intently. Her brow is curled, her eyes are squinted, and the fingertips on her right hand are nervously rubbing her chin. Carrying a baby in her left arm, she is flanked by two children who have buried their heads on her shoulders (P. 151).
- *9. An elderly couple is swinging in a park. The woman is sitting on the seat of the swing, laughing contentedly. The man, standing behind her on the swing, looks down at her with a mischievous smile (P. 114).

10. A weary laborer at a construction site is turning from his work to rest a moment and to rub his eyes. His torso is nude. He may be a convict, as his trousers have a white stripe running down the side (P. 72).

NOTE: The photographs identified by an asterisk (*) were classified as Happy and the remainder as Gloomy.

APPENDIX B

Description of Cartoons Used in the Humor Rating Task

1. Two rabbits are discussing a lion who is eyeing them from behind a tree. One says to the other, "I don't know about you, but I'd prefer a herbivore for king."
2. Five different drones are attending their queen bee. One asks, "What's to become of us if she insists on waiting for the drone of her dreams?"
3. A man, twitching his thumbs nervously behind his back, stares intently out his living room window while his wife observes him apprehensively from an armchair. She asks, "You're wearing your Purple Heart, Roger. Is there anything I've said or done?"
4. A disgruntled man awakens bleary-eyed in response to the daylight streaming into his bedroom. The world says, "Good morning, Mr. Average Citizen. How would you like your goose cooked today?"
5. A man with a halo sits in a cloud strumming his harp as an angel asks, "Would you be interested in reincarnation, sir? If so, we can place you immediately, as either a wombat or a mongoose."
6. Two old men wearing robes and carrying long canes meet on a deserted stretch of road. One asks, "Really? You a holy man? I'm a holy man, too."
7. An anonymous member of a disarrayed school of fish announces: "It's my personal opinion that the world nowadays is sadly lacking in leadership."
8. An ancient prophet sitting atop his pedestal confides to his attendant: "When the omens seem evenly balanced, I confess I'm inclined to plump for the rosier prediction."
- *9. Two birds are perched on a tree limb. The male clasps the wing of the female and confesses: "I love to hold your wing in mine, to touch your beak, to ruffle your plumes. . ."
10. Two plump ladies are sitting in a love seat sipping tea. The exuberant one declares: "I've been reincarnated four times, but, fortunately, I've always come back as me."
11. Two exhausted Romans are gloomily observing a drunken, libidinous crowd of fellow revelers. One observes, "The Rites of Spring probably aren't getting any duller. Maybe we're just getting older." (See Figure 2, P. 9.)
- **12. An enthusiastic couple is seated at a booth. The man declares: "Let's buy the American dream together."

13. Two bearded men are stranded on a small desert island. One looks on innocently as the other points with outrage at a rock on which the sentence, "Fred Bartow is a bum!" has been written. The latter asks, "Well, if you didn't do it, who did?"
14. Two middle-aged men, both holding a nautilus shell to the ear, are seated along the beach. One appears cowed as the other announces confidently, "Mine isn't. Mine's quite bullish."
- *15. A bull and a cow are in a pasture looking at one another with dreamy eyes. The bull confides, "Your bell sounds lovely this evening."
16. Two construction workers are observing a third proudly entertain a crowd of people by juggling large boulders in the air with his steam shovel. One of them, with a bitter expression on his face, declares: "I'm not saying he isn't good, I'm saying he's a showoff."
17. A man perched in the cockpit of his somewhat amateurish rocket, observes his daughter below as she asks, "But, Father, is running away even an answer?"
- **18. An elderly couple lying in a hospital bed are staring defiantly at the nurse, who says, "Visiting hours are over, Mrs. Glenhorn." (See Figure 4, P. 23.)
- *19. A spider is finishing an enormous cobweb that has been constructed between two limbs of a tree. Another spider asks, "Of course it's a beautiful job, dear, and the detail is exquisite, but don't you think it's a trifle busy?"
20. A heartstruck wife with curlers in her hair sheds a tear as her bedraggled, departing husband declares from the doorway, "Oh, ma chère, would that I could cast off this unbecoming guise of assistant comptroller for Amalgamated Die Casting, Incorporated, and be your poet-lover for twenty-four hours a day!"
- **21. A humble but profoundly contented scientist is listening to a trio of colleagues celebrate his triumph: "Dr. Grundlehaur works in this lab, E-I-E-I-O, and in this lab he's made a breakthrough, E-I-E-I-O, with a Eureka here! A Eureka there! Here a Eureka! There a Eureka! Everywhere a Eureka! Dr. Grundlehaur works in this lab, E-I-E-I-O."
22. Two leprechauns are seated on a pair of toadstools. The assertive one says to his scowling companion, "'Real,' you say! On, but have you ever asked yourself what *is* 'real'?"
- *23. The head of a worm and the tail of a worm are protruding from the ground. The head asks the tail, "Is that you, Sylvia, or me?"

24. Three turkeys are observing the plight of a fourth, who has fallen to the ground in a faint. One of them explains, "He just heard about stuffing."
25. An eskimo couple is surveying their environment as they emerge from an igloo. The man complains, "Same old ice, same old aurora borealis, same old everything!"
- **26. A middle-aged man with an open newspaper in hand leans toward his contented dog and says defiantly, "You wouldn't be wagging your tail if you could read."
27. In the midst of a foolish argument, a middle-aged couple turns toward their frightened pet dog and cat. The man inquires, "And how are you lower animals getting on?"
- **28. Two young boys are playing pensively in a suburban neighborhood. The one on the ground says to the one on a tricycle, "I'd run away from home if I knew how to drive."
29. A man is consoling his tearful young son as the latter looks longingly at a little girl standing next to a moving van across the street. The father says, "There'll be other Miriams, Son. Lots and lots of them."
- *30. An irate man and his astonished wife are fleeing a horde of strange monsters which is pursuing them down a mountain slope. The man exclaims, "I told you not to turn over that rock."
31. With pen and ink momentarily set aside, a brooding, stately gentleman muses: "O to be young and a jackass again!"
32. A party of skiers atop a wintry mountain is staring at the sky somewhat guiltily as a distant plane writes: "Go home and face your responsibilities."
- **33. An intense man approaches an information booth and asks the agent, "What's the world coming to?"
34. A señora, flanked by three children and carrying a fourth in her arms, looks down from her balcony at the melancholy lover who is seranading her. She says, "It's over, Manuel. Can't you see? It's over."
35. A handful of intrigued bystanders casually observe a beggar as he runs frantically on a treadmill bearing the sign: "RUNNING SCARED, Thank you."
- *36. Two satyrs are playing flutes as they prance through a field of tall grass. The older turns with irritation to his grinning companion and says, "Isn't it about time you struck out on your own, Son?"

37. A drowning man yells to the approaching lifeguard: "Wait, don't save me yet! The ineffable tenderness and exquisite rapture of my first love is flashing across my mind."
38. The devil is turning away a humble, bewildered man. The latter exclaims, "Persona non grata? You must be kidding."
- *39. A stout, bespectacled man with a suitcase is fleeing. Behind him menace the outstretched arms of a ghost-like creature having a clock for a head.
- **40. A nervous, wide-eyed man is sitting alone on a couch at a cocktail party. He refuses when the hostess offers him a drink, saying: "No more for me, thank you. I've got to worry."
- *41. A middle-aged couple quietly regard the falling leaves through their picture window. The husband declares, "Well, Doris, the children are grown and gone, and now it's just you versus me."
42. Two satyrs are chasing two nymphs across an Elysian field. One satyr turns to his perplexed friend and says, "Why? Why anything?"
43. Three elderly ladies gloomily regard the portrait of a man. One says to the others, "He didn't really die of anything. He was a hypochondriac."
- *44. A rotund, pевish man stands amidst the fires of hell in his white robe. Looking upward toward the stern face of the devil, he complains, "Somebody's been sleeping in my fire."
45. A housewife watches her husband as he trudges away from their house with a briefcase in his hand and a dark cloud hovering over his head. She asks, "Oh, Martin, must you take your despair with you?"
46. A man, with razor in hand, is admiring himself in the bathroom mirror. He says, "Congratulations on quitting smoking. Congratulations on passing up Martinis at lunch. Congratulations on avoiding heavy desserts. And last, but not least, congratulations on those fancy new sideburns."
- *47. Two suburbanites are standing on opposite sides of a fence jealously appraising each other's lawns. One man says to the other, "I couldn't disagree with you more. I think *yours* is greener."
48. A grinning, self-possessed executive is seated behind an enormous desk. He says to his secretary over the intercom, "Miss Morris, send in somebody who's secure enough to take a little kidding."
49. A dejected man stands before the door to his inner office, hat and briefcase in hand. His secretary leans across her desk to offer him a message and says, "While you were out for lunch, History passed by and Fame came knocking."

- *50. One turtle is speaking to another, who has withdrawn into his shell. Numerous other turtles are huddled against a rock in the background. The first turtle says, "Aw, come on out. Everybody's been asking for you."
- 51. Two bedraggled old men holding canes stop along the road as rain pours down on them. One grins and says, "I must confess some small satisfaction in knowing that the unjust are also getting soaked to the bone."
- 52. A maiden is opening the lid to a chest containing several supernatural creatures. Greed jumps out first, prompting Envy to scowl at him and chide: "Why is it *you* always have to get out first?"
- **53. A semi-impoverished elderly couple are in the cluttered kitchen of their house. The man is about to leave, looking foolish in his misfitting clothes. The woman looks up from her food and exclaims, "But you're not going girl-watching in that getup."
- 54. An artist has just painted two smiling trees and a smiling sun. Elated, he yells to his wife: "Alice! Alice! I'm out of my funk!"
- *55. A contented dog is lying on the floor as his master gloomily reads the newspaper behind him. Pictured in the dog's dream is the man cuddled up on the floor with the dog anxiously reading.
- 56. Flanked by an angel, St. Peter searches vainly through a scroll of names and says to the dejected man before him, "I'm very sorry, Mister, but if a Roscoe Elliot Newhaus was supposed to be on this list, he would *be* on this list. Right?"
- 57. A man is sculpturing a face on the side of a mountain. Chisel in hand, he looks regretfully at the tip of the nose, which has broken off and fallen to the ground. He exclaims, "Oh, damn!"
- 58. A plump, middle-aged couple in dainty attire is looking longingly in the direction indicated by a sign, which reads, "Fountain of Youth." The woman says, "I don't know, Harry. This has the ring of authenticity."
- 59. Two men are robbing the cash register in a bar. One of them is conversing earnestly with the bartender, whom he is holding at gun point. His partner exclaims, "Damn it, Charlie, this is no time to be telling him your troubles."
- 60. Two cars are approaching a division in the highway, where a sign indicates "Fun" to the left and "Tedium" to the right. The people in the left lane, driving a convertible, have flung their arms into the air with carefree abandon, while the sober couple in the right lane look on with restraint.

NOTE: The High make-believe cartoons are identified by one asterisk (*) and the Low by two (**).

APPENDIX C

Mean Tone of Outcome as a Function of Treatment, Humor Appreciation,
Sex, and Pictures
(*n* = 13)

<u>Humor Appreciation</u>	<u>Males</u>		<u>Females</u>	
	<u>Happy Pictures</u>	<u>Gloomy Pictures</u>	<u>Happy Pictures</u>	<u>Gloomy Pictures</u>
<u>Positive</u>				
Humor	.481	-.322	1.112	-.240
No Humor	.705	-.460	.872	-.407
<u>Neutral</u>				
Humor	.033	-.493	1.077	-.316
No Humor	.135	-.515	.548	-.785
<u>Negative</u>				
Humor	.519	-.398	1.225	-.202
No Humor	.478	-.365	.925	-.475

APPENDIX D

Mean Tone of Outcome as a Function of Treatment, Adaptive Regression,
Sex, and Pictures
(*n* = 13)

<u>Adaptive Regression</u>	<u>Males</u>		<u>Females</u>	
	<u>Happy Pictures</u>	<u>Gloomy Pictures</u>	<u>Happy Pictures</u>	<u>Gloomy Pictures</u>
<u>High</u>				
Humor	.502	-.403	1.207	-.238
No Humor	.093	-.607	.660	-.685
<u>Medium</u>				
Humor	.035	-.338	1.258	-.055
No Humor	.585	-.645	.925	-.557
<u>Low</u>				
Humor	.496	-.472	.948	-.465
No Humor	.638	-.089	.760	-.425

APPENDIX E

Mean Level of Response as a Function of Treatment, Humor Appreciation,
Sex, and Pictures
(*n* = 13)

<u>Humor Appreciation</u>	<u>Males</u>		<u>Females</u>	
	<u>Happy Pictures</u>	<u>Gloomy Pictures</u>	<u>Happy Pictures</u>	<u>Gloomy Pictures</u>
<u>Positive</u>				
Humor	3.517	3.475	3.592	3.527
No Humor	3.521	3.492	3.702	3.619
<u>Neutral</u>				
Humor	3.213	3.307	3.593	3.590
No Humor	3.379	3.368	3.655	3.678
<u>Negative</u>				
Humor	3.423	3.438	3.442	3.430
No Humor	3.393	3.428	3.561	3.558

APPENDIX F

Mean Level of Response as a Function of Treatment, Adaptive Regression,
Sex, and Pictures
(*n* = 13)

<u>Adaptive Regression</u>	<u>Males</u>		<u>Females</u>	
	<u>Happy Pictures</u>	<u>Gloomy Pictures</u>	<u>Happy Pictures</u>	<u>Gloomy Pictures</u>
<u>High</u>				
Humor	3.272	3.326	3.495	3.489
No Humor	3.319	3.344	3.692	3.665
<u>Medium</u>				
Humor	3.453	3.442	3.542	3.543
No Humor	3.553	3.582	3.589	3.634
<u>Low</u>				
Humor	3.428	3.452	3.590	3.515
No Humor	3.421	3.362	3.637	3.557

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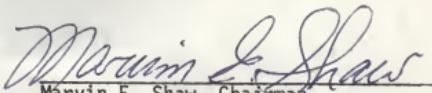
BIOGRAPHICAL SKETCH

Michael Linwood Stratil was born in New London, Connecticut, on March 12, 1942. He attended elementary school in Spokane, Washington, and graduated from Seacrest High School in Delray Beach, Florida. He passed a year of independent study in France and then took his Bachelor of Arts degree in psychology at the University of Florida, graduating with Honors in April, 1966.

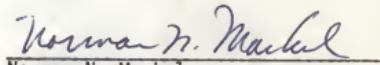
After serving two years with the Peace Corps as a teacher in the Ivory Coast Republic, West Africa, he returned to the University of Florida to pursue work toward the degree Doctor of Philosophy. He received the degree Master of Arts in general psychology in April, 1970.

Dr. Stratil is a member of Phi Beta Kappa, Phi Kappa Phi and Phi Eta Sigma honorary societies and is a student member of the American Psychological Association. In September, 1971, he began a career in teaching and research at the University of Southern Mississippi in Hattiesburg, Mississippi. His research interests include humor, human motivation, personality, and behavior genetics.

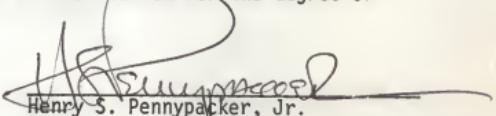
I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.


Marvin E. Shaw
Marvin E. Shaw, Chairman
Professor of Psychology

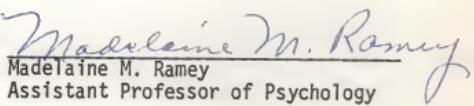
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Norman N. Markel
Norman N. Markel
Associate Professor of Psychology
and Speech

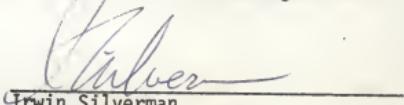
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Henry S. Pennypacker, Jr.
Henry S. Pennypacker, Jr.
Professor of Psychology

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.


Madelaine M. Ramey
Madelaine M. Ramey
Assistant Professor of Psychology

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.


Irwin Silverman
Irwin Silverman
Professor of Psychology

This dissertation was submitted to the Department of Psychology in the College of Arts and Sciences and to the Graduate Council and was accepted as partial fulfillment of the requirements for the degree of Doctor of Philosophy.

Dean, Graduate School